

# Research Population and Study Sample in Special Education Research

## Introduction

Defining the research population and selecting an appropriate sample are foundational pillars in designing scientific research within the field of special education, given the diversity of special-needs groups and the variability of their characteristics. The success of the study and the accuracy of its results depend greatly on the precision with which the population is defined and the suitability of the selected sample in representing it.

## First: The Research Population

### 1. Definition of the Research Population

The research population refers to all individuals, units, or records that the researcher aims to study and to which the findings of the research will be generalized.

In the field of special education, the population may include:

- All children with Autism Spectrum Disorder (ASD) in a particular institution.
- All special education teachers.
- All parents of children with learning disabilities, etc.

### 2. Types of Research Populations

#### a. Homogeneous Population

A homogeneous population is one in which individuals share similar characteristics related to the research.

#### **Example in special education:**

A study titled: *“The effectiveness of a training program in improving social communication skills among children with Level 1 Autism Spectrum Disorder in public special education centers.”*

This population is homogeneous because:

- All children have the same diagnosis (ASD – Level 1).
- They belong to the same age group.
- They attend public centers only.

Thus, their characteristics are similar from the perspective of the study.

### **b. Heterogeneous Population**

A heterogeneous population is one in which individuals differ clearly in their characteristics.

#### **Example in special education:**

A study titled: *“Vocational training needs of special education teachers across different provinces.”*

This population is heterogeneous due to differences in:

- Educational qualifications.
- Years of experience.
- Type of disability they work with (autism, learning disabilities, intellectual disabilities...).
- Geographical environment (urban/rural).
- Type of institution (public/private).

### **3. When Is It Necessary to Study the Entire Population?**

A researcher studies the entire population in cases such as:

- When the number of individuals with a specific disability is very small (e.g., 12 children with visual impairment in a small center).
- When a pedagogical decision requires information from all members (e.g., evaluating all parents of children with autism in one institution).
- When sampling is difficult due to the small size of the population.

## **Second: The Sample**

### **1. Definition of the Sample**

A sample is a subset of the research population selected scientifically based on specific characteristics so that it accurately represents the original population.

## 2. Conditions of a Good Sample

- **True representativeness:** The sample must possess the same characteristics as the broader population.
- **Adequate size:** It must not be too small to prevent generalization, nor excessively large to exceed the researcher's resources.
- **Scientific selection:** It should be chosen using recognized scientific sampling methods.

## 3. Illustrative Examples in Special Education

### Example 1:

If a researcher seeks to assess parents' satisfaction with services provided to their children with autism, the population consists of all parents.

The sample should represent:

- Both genders,
- Different child age groups,
- Various ASD severity levels.

### Example 2:

When measuring the effectiveness of a training program for learning-disabilities teachers, the sample may include teachers representing:

- Different experience levels,
- Public and private schools,
- Various educational stages.

## Third: Advantages of Using Samples

1. Reducing time and effort, especially with groups that are difficult to access, such as children with severe disabilities.
2. Lowering research costs, especially when psychological or educational tools are expensive.
3. Allowing more in-depth and precise data collection from a manageable number of participants.

#### **Fourth: Common Errors in Sample Selection**

1. Risk of selecting a non-representative sample, leading to inaccurate results.
2. Possible response bias among participants (e.g., parents fearing to criticize an institution).
3. Sample size may be insufficient for the required statistical analysis.
4. Difficulty representing highly diverse categories within special education (e.g., multiple different disorders).

#### **Fifth: Stages of Selecting the Study Sample**

##### **1. Defining the Original Research Population**

The population must be clearly specified.

##### **Example:**

“All special education teachers working with children with autism in Skikda province during the 2025/2026 academic year.”

##### **2. Preparing a List of Population Members**

Population data are collected from:

- Educational institution records.
- Lists of specialized centers.
- Databases of the Ministry of Education or Ministry of Solidarity.

These records must be accurate and up to date.

##### **3. Choosing the Sampling Method**

Sampling method selection depends on the nature of the population:

- **Simple random sampling:** when the population is homogeneous (e.g., children with learning disabilities in one school).
- **Stratified sampling:** when variation is high (e.g., autistic children distributed by ASD severity levels).
- **Systematic sampling:** when units are arranged uniformly (e.g., list of teachers in one center).

- **Purposive sampling:** when the study requires specific expertise (e.g., teachers with at least 5 years of experience in ASD teaching).

#### 4. Conditions for Determining Sample Size

Sample size depends on:

- Size of the original population.
- Nature of the disability (greater variability requires larger samples).
- Required statistical design.
- Available time and resources.

#### General guidelines:

- 20% of a small population (less than 300).
- 10% of a medium population (300–5000).
- 5% of a large population (more than 5000).
- In experimental studies: each group should have **at least 15 participants**.

#### Conclusion

Accurately defining the research population and selecting a representative sample constitute critical steps in special education research, given the high degree of variability in characteristics and needs among individuals with disabilities. The more the sample reflects the original population, the greater the credibility of the results and the stronger the potential for generalizing them to special-needs groups.