**Section 1.3 Simple Random Sampling**

1. **Random sampling** is the process of using chance to select individuals from a population to be included in the sample.

For the results of a survey to be reliable, the characteristics of the individuals in the sample must be representative of the characteristics of the individuals in the population. The key to obtaining a sample representative of a population is to let *chance* or *randomness,* rather than convenience, play a role in dictating which individuals are in the sample. **If convenience is used to obtain a sample, the results of the survey are meaningless.**

1. Clearly, the individuals in the sample do not accurately reflect the makeup of the entire population, CONVENIENCE.
2. The convenient sample is not representative of the population, which means that any results reported from your survey are misleading. Does your class mirror the gender, grade, or day/ evening of the entire campus, probably not.
3. Simple random sampling
4. Stratified sampling
5. Systematic sampling
6. Cluster sampling
7. A sample of size n from a population of size N is obtained through **simple random sampling** if every possible sample of size n has an equal chance of occurring. The sample is then called a **simple random sample.**

The number of individuals in the sample is always less than the number of individuals in the population. That is, n<N.

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Example 1

Sophie has four tickets to a concert. Six of her friends, Yolanda, Michael, Kevin, Marissa, Annie, and Katie, have all expressed an interest in going to the concert. Sophie decides to randomly select three of her six friends to attend the concert.

1. List all possible samples of size *n* = 3 from the population of size *N* = 6. Once an individual is chosen, he/she cannot be chosen again.

1,2,3 1,2,4 1,2,5 1,2,6 1,3,4 1,3,5 1,3,6 1,4,5 1,4,6 1,5,6 2,3,4 2,3,5 2,3,6 2,4,5 2,4,6 2,5,6 3,4,5 3,4,6 3,5,6 4,5,6

Comment on the likelihood of the sample containing Michael, Kevin, and Marissa.

1/20 percent chance of containing these three friends.

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How do we select the individuals in a simple random sample?

Typically, each individual in the population is assigned a unique number between 1 and *N*, where *N* is the size of the population. Then *n* distinct random numbers are selected, where *n* is the size of the sample. To number the individuals in the population, we need a frame**–** a list of all the individuals within the population.

Question 2.

1.EPR 674, Educational Research Planning and Interpretation

2.EPR 691, Nonparametric Statistics

3. EPR 644, Interpretive Methods in Educational Research

4. EPR 625, Fieldwork Methods in Educational Research

5. EPR 663, Theory of Measurement

1,2 1,3 1,4 1,5 2,3 2,4 2,5 3,4 3,5 4,5

674, 691 done f

674, 644 done e

674, 625 not

674, 663 done b

691, 644 done g

691,625 done c

691,663 done H

644 625 Done j

644 663 done a

The results of Example 1 leave one question unanswered:

***How do we select the individuals in a simple random sample?***

We could write the names of the individuals in the population on different pieces of paper and then select names from a hat. Often, however, the size of the population is so large that performing simple random sampling in this fashion is not practical.

Typically, each individual in the population is assigned a unique number between 1 and N, where N is the size of the population. Then n distinct random numbers are selected, where n is the size of the sample.

To number the individuals in the population, we need a **frame**—a list of all the individuals within the population.

Question 1.3.9

09 50 65 69 28 73 83 81 32