

How to use the systematic sampling method

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Suppose that you have a list of 2700 employees in your company or organization, please describe in detail how you would use the systematic sampling method to select 30 participants for your study.

Systematic sampling is a technique in which the n th member of a particular population in research is chosen for inclusion in the sample. In the given scenario, if the desired number of participants (the sample size) is 30 and the population is 2,700 (number of employees in the organization, through simple computation, $n = 90$). The required equation for calculating the sample size of the population would be desired participants (n) = population.

Applying this formula to the given case $30 (n) = 2700$. Calculating the value of n gives us 90. When using a numbered list of the workers, the n th employee will be selected in a sequence that chooses the 90, 180, 360, 450, and 540, 630. . . until the 30th participant is selected. However, the random starting number is determined by picking a number between 1- 90 randomly.

There are fewer male employees in your company. If you want to be sure these male employees, are equally represented in your study, what sampling procedure should you use? Please describe in detail what you would do.

When dealing with two different groups within a population, the most appropriate sampling method to use is the stratified sampling method. Specifically, this technique is a modification of simple either random or systematic sampling styles, where the population is divided into two homogeneous subgroups. Afterward, the sample is selected using either of the techniques mentioned above. In applying these techniques in the given case, first I would divide the groups into male and females. For instance, if there are 1800 men and that of females are 900. Carrying out the <https://assignbuster.com/how-to-use-the-systematic-sampling-method/>

systematic sampling for the males would be 20 ($n = 1800$) and female would be 10 ($n = 900$). In my estimate, the number of men makes up two-thirds of the population and females equal to one-third of the population; therefore, sampling technique applied, in this case, is called a proportional stratified sampling method.

Suppose that you selected 30 employees (participants) for your study, you gave them a survey on their attitude towards the possible new initiative.

What are some possible threats to the internal validity of this design?

The eleven threats to internal validity are Selection, Maturation, History, Subject Effect, Instrumentation, Treatment Replication, Subject Attrition, Presenting, Statistical Regression, Diffusion of Treatment, and Experiment Effect.

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A true experimental design compares two identical groups of randomly picked participants, and that is the experimental group and the control group. The experimental group is subjected to a certain intervention (s) while the control group is used to assess the changes in the experimental group.

Specifically, the control group gives the validity of the research by confirming that the changes experienced or because of the intervention and not any other factor. In this example, the new intervention would be the response subjected to the experimental group while the control group would work without any intervention. Randomized groups two groups of 30

members would be selected for the experimental and control group using the randomized group post-test-only design. However, the selection of the

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groups should use the simple random technique in order to ensure that each member has an equal chance of falling into either group. In this experiment, only a single variable (initiative) is manipulated and tested. Below is a diagrammatic presentation of the study:

Which statistical procedure would you use to analyze the quantitative data you collected from your pilot study (with a true experimental design) to address your research question?

The most appropriate statistical procedure for analyzing the quantitative data collected from the pilot study to address the research question is factorial design. Specifically, the reason for this is that I would use the new initiative and independent variables non-initiative groups. The rationale for using a factorial design is that it facilitates the determination of two or more independent variables. Additionally, it is a good test to use when the initiative and non-initiative effects are consistent in both groups. Furthermore, the factorial design enables me to see the interaction of the independent variables, which is a unique feature of this model.