

◆ **Homework Check:** 3-6◆ **Note:** Surveys and Questionnaires

Because the answers to survey questions can either be factual or subjective, you have to be careful when assessing the validity of survey results. When putting a survey together, you have to think about **sample size** as reflective of the population from which you are gathering data, the **method of selecting respondents**, and the **survey questions** you will ask. If the sample size is too small, the data will not be reflective of the majority of the views and may not be reliable or could be **biased**. The sample also needs to be typical of the entire population which is called a **representative sample**. Sampling should also be **random** so that everyone has a chance of being chosen as a representative of the population in your survey.

**Random Sampling Techniques:**

**Simple Random Sampling** – sampling in which individuals are chosen randomly from the entire population

**Stratified Sampling** – sampling in which data are grouped and a few individuals from each group are chosen randomly

**Cluster Sampling** – sampling in which the data is organized into representative groups and one group is chosen as a sample

**Systematic Sampling** – sampling in which every nth individual is chosen

**Non-random Sampling Techniques:**

**Convenience Sampling** – sampling in which individuals who are easy to sample are chosen

**Judgement Sampling** – sampling in which the person doing the sampling creates the representative sample

**Voluntary Sampling** – sampling in which people volunteer to be part of the sample

Biased questions are restrictive by not offering choice or by using influential words as part of the question. For survey results to be valid, questions must be as unbiased as possible. Another factor to consider is how you conduct your survey and the subject matter. For example, people are more likely to answer honestly if the survey can be answered anonymously.

In order to answer any questions about sampling, keep these things in mind:

1. Is the sample large enough?
2. Is the sample representative?
3. Are the survey questions unbiased?
4. Was the collection method appropriate?

◆ **Homework:** 3-7

**Lesson : 3-7 Surveys and Questionnaires**

1. Three schools each survey 300 students about whether they want a longer lunch. What percent of students in each survey want a longer lunch? (6 marks)

School	Number of Students wanting a longer lunch
1	60
2	270
3	175

2. For each population, determine how many people should be surveyed to include 10% of the population. (8 marks)

a) 350 people

b) 930 people

c) 1180 people

d) 10 360 people

3. The student council surveys 50 students. What percent of the population is this? Is the sample size large enough to represent the school? (6 marks)

a) 450 students

b) 750 students

c) 1200 students

4. Identify whether each survey question is biased or unbiased. (3 marks)

Old gasoline powered lawn mowers pollute more than cars. People should be forced to replace them with more efficient mowers.

Agree  Disagree

We will offer yoga classes c weeknight each week. Wh night would you prefer?

Thursday  
Monday  
Wednesday  
Tuesday  
Friday

Should owners of hybrid vehicles be given an energy rebate from the government?

Yes  no

5. An internet survey asks people's opinions about a new software package. Which question is unbiased? How is the question biased? (2 marks)

i) This software is used by some of the biggest names in business. If you have tried this software, what did you think about it?

excellent     good     fair     poor

ii) Have you tried this software?  yes     no

If you have tried this software, what did you think about it?

excellent     good     fair     poor

6. An urban music radio station asks its listeners to e-mail or text an answer to this question:

“Do you think students in our city should wear school uniforms?”

95% of respondents say “No”. The radio station announces that city schools should not introduce school uniforms since 95% of city residents are against the idea. Is the sample representative? If not, how can this question be improved? (2 marks)

7. A newspaper columnist wants to find out what people think of a proposed by-law that would limit the height of fences they can build in their yards. He writes this survey question:

“Once again the government is trying to control us. This time they are interfering with our backyards.

Do you agree with the proposed law to limit the height of a fence residents can put up in their yard to 2.44m?”

yes     no

Will the survey results be valid? If it is invalid, how can it be improved? (2 marks)

8. A coffee shop owner sets up a survey outside his coffee shop on a Saturday morning. He surveys 100 people and gives a free cup of coffee to anyone who participates. He asks:

“How many cups of coffee do you drink in a day?  1-2 cups     3-4 cups

5 – 6 cups     7-8 cups

How happy are you on a scale of 1 – 10 with 1 being very unhappy and 10 being very happy?”

Why will the survey results be invalid? How can the survey be improved? (2 marks)