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| **Questionnaire Design** |
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| **Setting:** | Seminar, class size approximately of 30 - 40.  |
| **Preparation duration:** | 40 - 50 minutes. |
| **Level:** | Levels 4 - 6 |
| **Activity duration:** | 45 - 50 minutes. |
| **Additional guidance:** | Lecturer can refer to one published blank questionnaire. |
| **Outcomes:** * Students will learn about the purpose of data collection.
* Lecturer will demonstrate that any statistical study requires data variables.
* Students will be able to define the data type of each variable required for the project.
* Students will be able to design a first draft of questionnaire for collecting data.
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| **Pre-task preparation:** * Data collection is the second phase of the statistical problem-solving cycle, see Page 3 of the reference 1 and Table 1 of the reference 4.
* Examine a sample of questionnaire (see Resource 1).
* Explore the different sections the questionnaire (see reference 2).
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**Steps to implement the activity:** 1. Set the learning objectives of the session.
2. Show the diagram of the statistical problem-solving cycle, see Page 3 of the reference 1 or Table 1 of reference 4 (see Resource 1).
3. Introduce the concept of questionnaire.
4. Conduct a discussion on different aspects of a questionnaire.
5. Present slides 11 – 24 of the Questionnaire Design PowerPoint presentation (see Reference 2).
6. Set 10-minute activity, ask student to design a simple questionnaire see slide 19 – 20 of the “Questionnaire Design” PowerPoint presentation (in Reference 2).
7. Comment on students’ task and recap.

**Guidance** **How to collect data?**There are four main different methods for collecting data. For a statistical investigation, we may need all or some of them. * + **Questionnaire/Survey** carefully designed to fit the purpose, needs to be handed to a group of people, users or subjects of interest. It can be done on paper, through the phone or on-line. The output define a sample of data, which require analysis and processing.
	+ **Observations** happen by gathering information from repeated experiments, or from a set of users or subjects of interest.
	+ **Interviews** by questioning managers and selected individual staff for further information. To ask deep and extensive questions.
	+ **Documents consultation** helps to extract additional information.

**Why a questionnaire require a sample?** To carry out a **questionnaire** we must select a **sample**. In statistics, a sample is a subset of a population that is used to represent the whole group of individuals. When doing research, it is often impractical to question every individual of a specific population. To make inferences about the characteristics of a population, researchers refer to a random sample. Often researchers prefer random samples because they are unbiased and representative of the full population. There are several sampling techniques such random, systematic, stratified, cluster and quota. Each techniques has its advantages and its inconveniences. **References**1. The Higher Education Academy, *Guide to Statistics: Supporting Statistics in Medicine*. [https://www.sheffield.ac.uk/polopoly\_fs/1.43825!/file/Supporting-statistics.pdf](https://www.sheffield.ac.uk/polopoly_fs/1.43825%21/file/Supporting-statistics.pdf)
2. <http://www.statstutor.ac.uk/topics/questionnaires/questionnairedesign/>
3. <https://www.questionpro.com/blog/types-of-sampling-for-social-research/>
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