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| **Data Collection** |

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| **Setting:** | Seminar, class size approximately of 30 - 40.  |
| **Preparation duration:** | 30 - 45 minutes. |
| **Level:** | Levels 4 - 7 |
| **Activity duration:** | 40 - 50 minutes. |
| **Additional guidance:** | Lecturer can refer to one published research paper related to a statistical study, (e.g. one of the articles mentioned in references 4 – 6) and try to identify data which has been collected and how has been collected. |
| **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.
* Given a questionnaire, students will be able to identify the data type of some variables.
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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.
* Examine a sample of questionnaire.
* Identify the data types of the variables of a questionnaire; see the references 2 and 3.
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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 (otherwise see Resource 1).
3. Explain the second component of the cycle: Data Collection, highlight its importance and its purpose for the study.
4. Conduct a discussion on different ways for collecting data; for further details are in “Guidance for the tutor”.
5. Then refer to the flowchart of different data types (Resource 2), explain each type and show examples from (Resource 4) or from the reference 3.
6. Display a sample questionnaire on the whiteboard and ask students to describe the data type of each question (see Resource 3).

**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.

**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. Statistics Methods - Introduction PowerPoint presentation - Slides 7 – 9 <http://www.statstutor.ac.uk/topics/basicstatisticalconcepts/datatypes/>
3. Data types in Statistics <https://towardsdatascience.com/data-types-in-statistics-347e152e8bee>
4. Koohestani H.R et al. (2009) Barriers to the reporting of medication administration errors among nursing students, *The Australian journal of advanced nursing*, 27 (1), pp. 66-74
5. Griffiths, C. et al. (2016) *Effect of an education programme for south Asians with asthma and their clinicians: a cluster randomised controlled trial* (OEDIPUS), PLoS ONE 11 (12) e0158783, and doi:10.1371/journal.pone. 0158783. pp. 1 – 16. Editor: Ji-Hyun Lee, UNM Cancer Centre USA. <https://core.ac.uk/display/74226478> Open access article
6. Zibaeenezhad, M.J., (2008) Association between periodontal disease and coronary artery disease, *Central European Journal of Medicine*, 3 (3), pp. 308-314
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