Life on an Island: a Simulated Population for Learning Statistical Reasoning

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Abstract:

It is important for students learning statistical reasoning to see data in context. One of the best ways of achieving this is to involve students in data production and so in the past ten years we have had first-year students undertake real experiments of their own choosing as part of our introductory statistics course. However in practice students are limited in what they can do. Many want to conduct experiments involving human subjects, requiring ethics approval, while even those not wanting to use humans may have general health and safety issues. The result has been that the students often end up doing simplistic experiments that may actually reinforce a trivial view of the role of data analysis in science.

We have developed an open-ended virtual environment, the Island, to help overcome these limitations while still engaging students with study design and data collection. Students work with a population of virtual humans living on the Island and are able to conduct a wide variety of experiments with them as subjects. The Islanders also live in villages, have ancestors and die from a range of diseases, allowing students to study the epidemiology of the island as well. In this presentation we will give a tour of this Island, highlighting some of the features and the issues, and sharing our experiences of using the Island in teaching and learning and how it can be used beyond statistics classes.