European Network for Business and Industrial Statistics

Tools Created with R and Python for Teaching Statistics in Blended Learning

Wednesday, 13 September 2023 11:05 (20 minutes)

Blended learning refers to the combination of online teaching with face-to-face teaching, using the advantages of both forms of teaching. We will discuss task generators developed with R and Python that support students in practising statistical tasks and can be easily extended in the future. The tools automatically generate tasks with new data, check the solutions and give students visual feedback.

We present an e-learning self-test programmed with R on contingency tables and correlation measures. For the development of the tool, a so-called interactive tutorial from the learnr package is used as the output format, which generates a dynamic HTML-based web page. Using the programming language Python, a task generator for descriptive statistics exercises was developed that covers location and scale measures, histograms and boxplots. The graphical user interface is based on PyQt5. The Qt GUI framework is written in the programming language C++ and is offered platform-independently.

Finally, we give an outlook on research within the project IPPOLIS, which is part of the German federal-state funding initiative "Artificial Intelligence in Higher Education". The focus of the overall project is on measures to improve higher education through artificial intelligence-based support of teaching activities and learning processes. To enable the use of case studies in statistics teaching, a learning environment with R shiny is being developed.

Keywords

Blended Learning, Teaching Tools, R Shiny

Classification

Mainly application

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Session Classification: CONTRIBUTED Special Session: Education and Thinking

Track Classification: Education & thinking