Examining the impact of visual teaching and learning strategies on undergraduate students self-reported experience of quantitative research methods teaching: update from the Loughborough Project

This item was submitted to Loughborough University’s Institutional Repository by the/an author.

Citation: CHAMBERLAIN, J.M., SIGNORETTA, P. and HILLIER, J., 2013. Examining the impact of visual teaching and learning strategies on undergraduate students self-reported experience of quantitative research methods teaching: update from the Loughborough Project. HEA Workshop Series: Visualization and Quantitative Methods, Loughborough University, 29th May 2013.

Additional Information:

- This is a conference presentation.

Metadata Record: [https://dspace.lboro.ac.uk/2134/13220](https://dspace.lboro.ac.uk/2134/13220)

Publisher: Higher Education Academy Website

Please cite the published version.
Examining the Impact of Visual Teaching and Learning Strategies on Undergraduate Students Self-reported experience of Quantitative Research Methods teaching: Update from the Loughborough Project

“Exploring visual aspects of data helps students to learn basic statistics concepts”.

Dr Martyn Chamberlain, PI
Dr John Hillier, Co-Investigator
Dr Paola Signoretta, RA
Outline

* Background
* Progress summary
* Example of visualization
* Emerging key messages
* Next stages
* Questions?
Background

- Social Science Students and Maths Confidence.
  - International Benchmarking Review of Best Practice in the Provision of Undergraduate Teaching in QM in the SS (2008); MacInnes (2009; 2012)
  - “Exploring visual aspects of data helps students to learn basic statistics concepts”.
- Focusing on Visualisation and Learning Statistics
- QM Induction Course
- Data Collection
**Progress Summary**

- Data Collection and Research Partners Update
- Induction Module Design and Portfolio-based assessment
- ArcGIS and Hypothesis Generation:
  - Thematic mapping,
  - Multivariate mapping,
  - Cartograms, and
  - Cluster analysis;
- Piloting the ArcGIS Crime Analysis Case Study
Key Messages

* Loughborough Baseline Data:
  * Anxiety but willingness to learn, and appreciation of relevance;
  * Current statistics self-efficacy: no confidence at all or a little confidence;
  * Confidence in learning: slightly better than confidence in current ability.
  * Visualisation would help them learn statistics.

* ArcMAP Pilot
  * Involve students in the pedagogic development process;
  * Guide students in the learning process using a visual approach (rather than expect them to learn by just looking at data);
  * Ensure visual technology facilitates rather than hamper learning.
Next Steps

- Data Collection

- ArcMap Pilot 2 and Module Finalization for 2013/14 academic year.

- Visualization may help students to prepare for a QM module.

- Any questions?