

DHEP and CDD assessment

Patch 4: Assessment for learning rationale and analysis

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Background

- In MSc Statistics by Dept of Maths & Stats
- **MATH550: Statistics in Practice**
 - 15 credits, level 7
- Provide students with a range of skills necessary for applied statistical work including:
 - Team-working
 - Oral presentation
 - Statistical computing
 - Preparation of written reports including statistical analyses

- Perform statistical analyses in R
- Write reports & presentation slides in RStudio
 - Bullet points and R code in a single source file

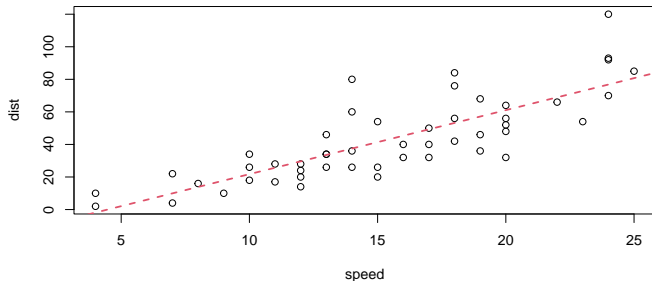


Figure 1: Scatterplot of a simple data set showing positive correlation

The assessment

Recorded presentation

- Record a short video (~7 minutes) on Microsoft Teams
- Present the statistical analysis of a given data set
- Generate slides by writing the source file in RStudio

Making clear to the students

- First year implementing this assessment
- Making sure the students know what they need to do
- Demonstrated how to write source file and generate slides
- Recorded my teaching in front of the students

Marking criteria

- 20%: submitting the link to video & the slides
- 20%: submitting the source file from which I can reproduce the slides
- 30%: oral presentation
- 30%: slides presentation

The critique

Fitting the module?

- Fills void in a module learning outcome
 - *To present data and results of statistical models orally*
- Meets a learning outcome jointly with other assessment
 - *To be able to use statistical (R) and type-setting software (LaTeX)*

Fitting the programme?

- Addresses learning outcomes
 - *Communicate ideas effectively both through oral presentations and in written reports*
 - *Communicate complex statistical arguments to scientists and non-statisticians*
- Adds to the already wide range of assessment methods
 - Statisticians required to perform a variety of tasks similar to those assessed
- Linked to other parts of the programme
 - Writing R code and text in one source file
 - Presenting statistics for dissertation project

Why did we introduce this?

- Programme changes to streamline the modules
 - Align with the MSc Data Science programme
- Move to online
 - Not only teaching and learning
 - But also presentation at work and research
- Reproducibility crisis
 - One's analyses cannot be reproduced by others
- Assessment develops students' ability in addressing these aspects

- Boud & Falchikov (2007) and King (2019) (in Bryan & Clegg (2019)): *authentic assessments can provide opportunities for students to critique their own work and prepares them better for employability*
- Sambell et al. (2012): *using assessment to emulate complex disciplinary ways of thinking and practising*
- A variety of tasks that occur in actual work
 - Understand the workflow →
perform statistical analyses that meet industrial standard →
write source file that contains R code and text →
create reproducible slides →
present orally the whole story

- Also **King (2019)**: *Inclusive assessment is designed to provide all students with fair and equitable opportunities for demonstrating their skills and knowledge*
- A lot of in-class opportunities to practise using the software
 - One workshop dedicated for making presentation slides
- The tasks require vastly different skills
 - Understand the workflow →
perform statistical analyses that meet industrial standard →
write source file that contains R code and text →
create reproducible slides →
present orally the whole story

Learning during the process?

- Sambell et al. (2012): *Effective planning and structuring of teaching sessions, so that students have ample opportunity to build, rehearse and practise important qualities and skills before they 'count'*
- Murphy & Barry (2016) & Murillo-Zamorano & Montanero (2018)
 - Both in **Assessment & Evaluation in Higher Education**
 - Presentations were video-recorded, allowing students to (self-)review
- Nature of our assessment to allow reviewing and rehearsing

Self evaluation & peer feedback

- Studies by **Murphy & Barry (2016)** & **Murillo-Zamorano & Montanero (2018)** also involved self-evaluation and/or peer feedback
- Not enough time or resources for our assessment
 - Only formal comments from me during marking
- Learning from others possible, plagiarism unlikely

Some more examples

- All in **Assessment & Evaluation in Higher Education**
- Cox et al. (2010): video & multimedia as diversified assesement
- Irwin & Hepplestone (2012): technology facilitates alternative formats
- Deeley (2018): a showcase of technological tools that facilitate assessment for learning & feedback

Closing

Summary & suggestions

- Addresses learning outcomes
 - On module level & programme level
 - Jointly with other assessment methods
- Useful as I have incorporated in teaching
 - “Practise what I preach”
- Possesses a few good qualities
 - Authentic, inclusive, encouraging learning during the process
- To be well demonstrated and communicated
 - For students to achieve the learning outcomes

Boud, D. & Falchikov, N., eds (2007), *Rethinking Assessment in Higher Education*, 1st edn, Routledge.

URL: <https://doi-org.ezproxy.lancs.ac.uk/10.4324/9780203964309>

Bryan, C. & Clegg, K., eds (2019), *Innovative Assessment in Higher Education*, 2nd edn, Taylor & Francis Group.

Cox, A. M., Vasconcelos, A. C. & Holdridge, P. (2010), 'Diversifying assessment through multimedia creation in a non-technical module: reflections on the maik project', *Assessment & Evaluation in Higher Education* **35**(7), 831–846.

URL: <https://doi.org/10.1080/02602930903125249>

Deeley, S. J. (2018), 'Using technology to facilitate effective assessment for learning and feedback in higher education', *Assessment & Evaluation in Higher Education* **43**(3), 439–448.

URL: <https://doi.org/10.1080/02602938.2017.1356906>

Irwin, B. & Hepplestone, S. (2012), 'Examining increased flexibility in assessment formats', *Assessment & Evaluation in Higher Education* **37**(7), 773–785.

URL: <https://doi.org/10.1080/02602938.2011.573842>

King, H. (2019), Stepping back to move forward, in C. Bryan & K. Clegg, eds, 'Innovative Assessment in Higher Education', 2nd edn, Taylor & Francis Group.

Murillo-Zamorano, L. R. & Montanero, M. (2018), 'Oral presentations in higher education: a comparison of the impact of peer and teacher feedback', *Assessment & Evaluation in Higher Education* **43**(1), 138–150.

URL: <https://doi.org/10.1080/02602938.2017.1303032>

Murphy, K. & Barry, S. (2016), 'Feed-forward: students gaining more from assessment via deeper engagement in video-recorded presentations', *Assessment & Evaluation in Higher Education* **41**(2), 213–227.

URL: <https://doi.org/10.1080/02602938.2014.996206>

Sambell, K., McDowell, L. & Montgomery, C. (2012), *Assessment for Learning in Higher Education*, Taylor & Francis Group.