Vision for Data Science Education

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How to build a successful Data Science education program:

- teach responsible use of methods, tools and workflows
- keep the curriculum current and modern
- build integrated content from the founding fields

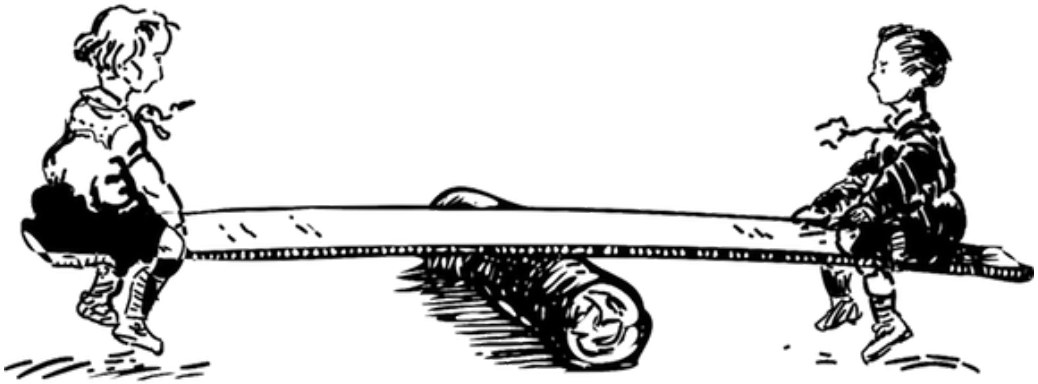
source: Rich Renomeron CC BY-NC-ND

1. Teach responsible use of Data Science methods, tools and workflows

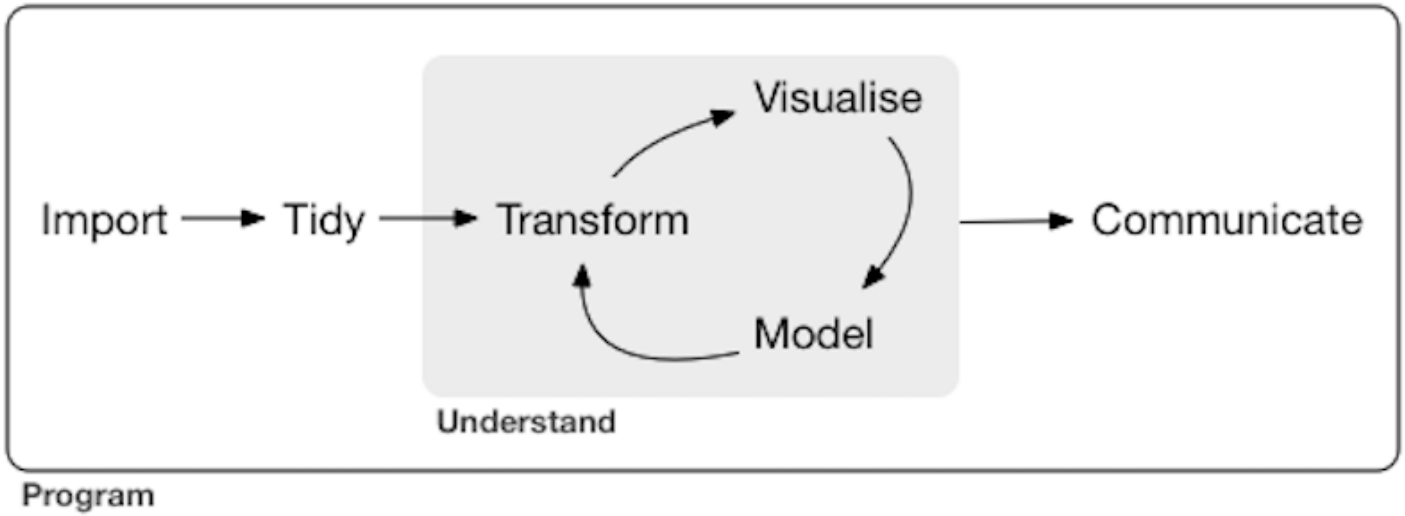
- balance the depth and breadth of content to teach
- teach reproducible Data Science workflows

1.1 Balancing the depth and breadth of content to teach

- teach what is needed for a typical Data Science workflow
- ensure students have enough knowledge to use in correct context, and to correctly interpret results



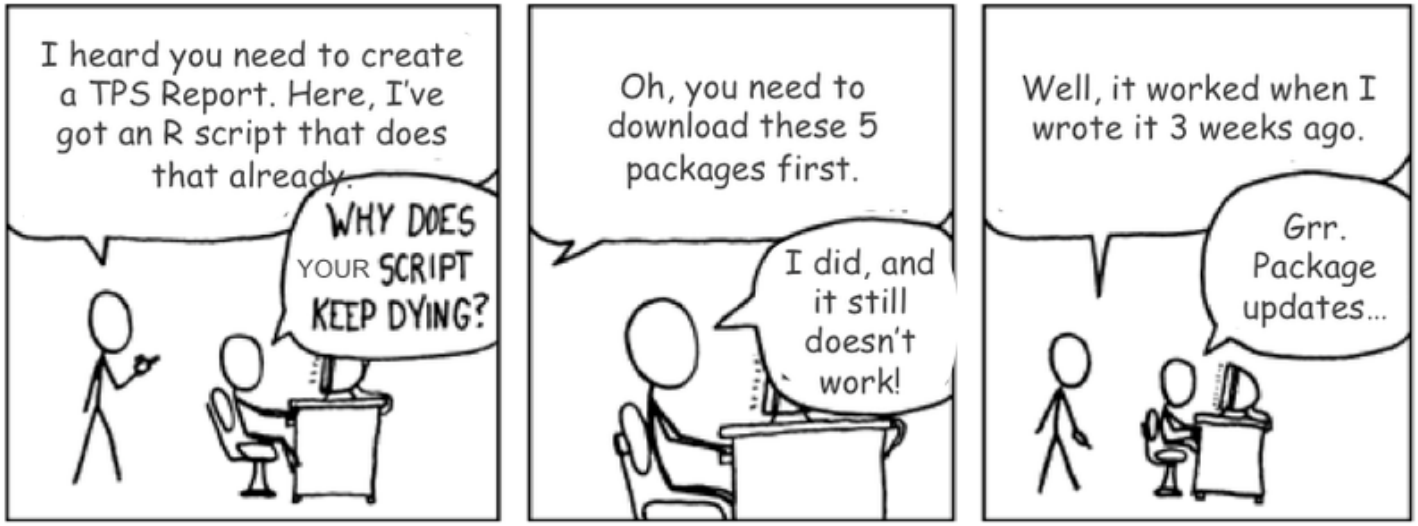
Typical Data Science workflow is a lot of things!



source: R for Data Science by Grolemund & Wickham

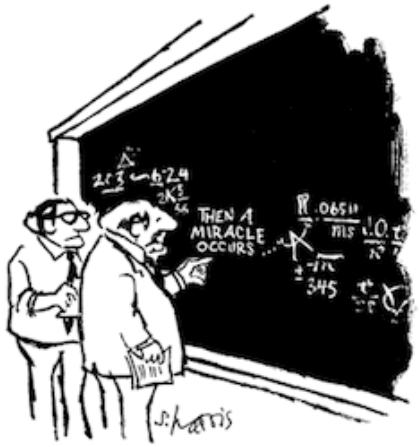
1.2 Teach reproducible Data Science workflows

- reproducible workflows lead to transparency, rigour and believability of Data Science analysis and visualization



source: xkcd

Essential skills for reproducibility



"I think you should be more explicit here in step two."

source: Sidney Harris

We need to explicitly teach students:

- scripting & literate programming
- version control
- package use & development
- package management
- environment management
- automation

2. Keeping the Data Science curriculum current and modern

- Data Science in one of the most rapidly evolving fields
- Instructors need to stay current
- Students must learn how to stay current too!

How we can stay current (beyond the literature):

- Read Data Science, Tech and business blogs
- Use social media
- Attend Data Science-related conferences
- Communicate with Industry
- Watch what other programs are doing

3. Building integrated content from the founding fields of Data Science

- Data Science education is best created by collaboration
- Data Science initiatives can benefit supporting departments

Summary - 3 pillars of Data Science Education

- teach responsible use of methods, tools and workflows
- keep the curriculum current and modern
- build integrated content from the founding fields

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Questions/Discussion