Can R Notebooks help with reproducibility?

##Introduction

Barbara R.Jasny writes in an article that as new technologies produce more and different data to work with the knowledge (Jasny et al. 2011)

Definition: Reproducibility means that you should be able to repeat a research with the same data and procedures that were used in an article.

The terms reproducibility and replicability are used interchangeably in scientific circles. Some groups believe that reproducibility means repeating an investigation in an article using the same data, while replicability means doing it again, preferably with new data, but getting the same response. While other groups believe the opposite.

## Benefits

As we have writtten about before, we use reproducibility to repeat a research using the same data but with a separate twist.

Barbara R. Jasny et al. writes in an article that new technology is constantly emerging, and produces new data in different variants, which increases the expectations for new knowledge. (Jasny et al. 2011). By increasing the expectations of the data, we can also see an increase in the expectations for the content.

Although a test is reproducible, the quality may not be as good.

## Disadvantages

Steven N. Goodman et al. are writing in their article that reproducibility, replicability, reliability, robustness, and generalizability are used interchangeably in, for example, scientific environments. The terms seem to be a confusion in the literature and it can make it difficult to rely on a scientific result For their part, it is mostly for use in the biomedical field, but there is great faith that this could also solve other scientific areas.@goodman\_what\_2016 An example: Some groups believes reproducibility means repeating an investigation in an article using the same data, and replicability means doing it again, preferably with new data, but getting the same response. While other groups believe the opposite.

## Solution

First of all, a solution could be that the scientific enviroment came together to create and definition to each of the different concepts reproducibility, replicability, reliability, robustness, and generalizability. It would have made the concepts easier to use and which in turn had given a common understanding of what was used at any given time. Steven N. Goodman et al. want to divide it into three different elements: methods reproducibility, results reproducibility, and inferential repro- ducibility. For their part, it is mostly for use in the biomedical field, but there is great faith that this could also solve other scientific areas.@goodman\_what\_2016

### Is there a perfect code?

Nick Barnes who works in the Climate Code Foundation writes in an article from 2010, that researchers don’t have to put so much emphasis on coding in their work, because the benefit of sharing raw data can be greater than writing a perfect code.

He further writes that if we share raw data that performs the job it is supposed to, the intention with the data is in place. So why not share it then.

He points out that in 2007 NASA released a software that wasn’t completely finished, but by releasing it before it was completely finished, they received held along the way so that it became both better and more user-friendly. Even if they got help, it didn’t mean that NASA had released a bad program or taht the result after they released the first version gave a slighty worse result. NASA took the change with them and made the software even better.

In Conclusin, he writes that researchers must work together to create space to release raw data, so that we can benefit from each other’s help to not always strive for perfectionism before we publish. But this is not something researchers nedd to do alone they also need help from the community around them (Barnes 2010).

#### referances

Goodman, Fanelli, and Ioannidis (2016)

Barnes, Nick. 2010. “Publish Your Computer Code: It Is Good Enough.” *Nature* 467 (7317): 753–53. <https://doi.org/10.1038/467753a>.

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Jasny, Barbara R., Gilbert Chin, Lisa Chong, and Sacha Vignieri. 2011. “Again, and Again, and Again.” *Science* 334 (6060): 1225–25. <https://doi.org/10.1126/science.334.6060.1225>.