

BETTER TEACHING, BETTER SOFTWARE, BETTER SCIENCE

Peter Steinbach

April 8, 2019

Dresden, Germany

SOFTWARE AND SCIENCE

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- [csbdeep/care](#)
- [LibAPR](#)
- [DALIGNER](#)

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- simulation
- data management
- data analysis/processing
- optimisation
- quality control
- visualisation

THE CARPENTRIES



Merged in 2018!

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(funding: 59% membership fees, 19% workshop fees, 22% donations)

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(funding: 59% membership fees, 19% workshop fees, 22% donations)
- **70+ members**: EMBL/EBI, Cambridge U, Stanford U, ...

A SOFTWARE CARPENTRY BOOTCAMP

1. Automating Tasks with the Unix Shell (1 day)
2. Basics of Data Analysis and Coding with Python (1.5 days)
3. Version Control with Git (0.5 days)

Example:

Practical Skills for Data Analysis and Scientific Computing
(MPI CBG, Jan 14-16, 2019)

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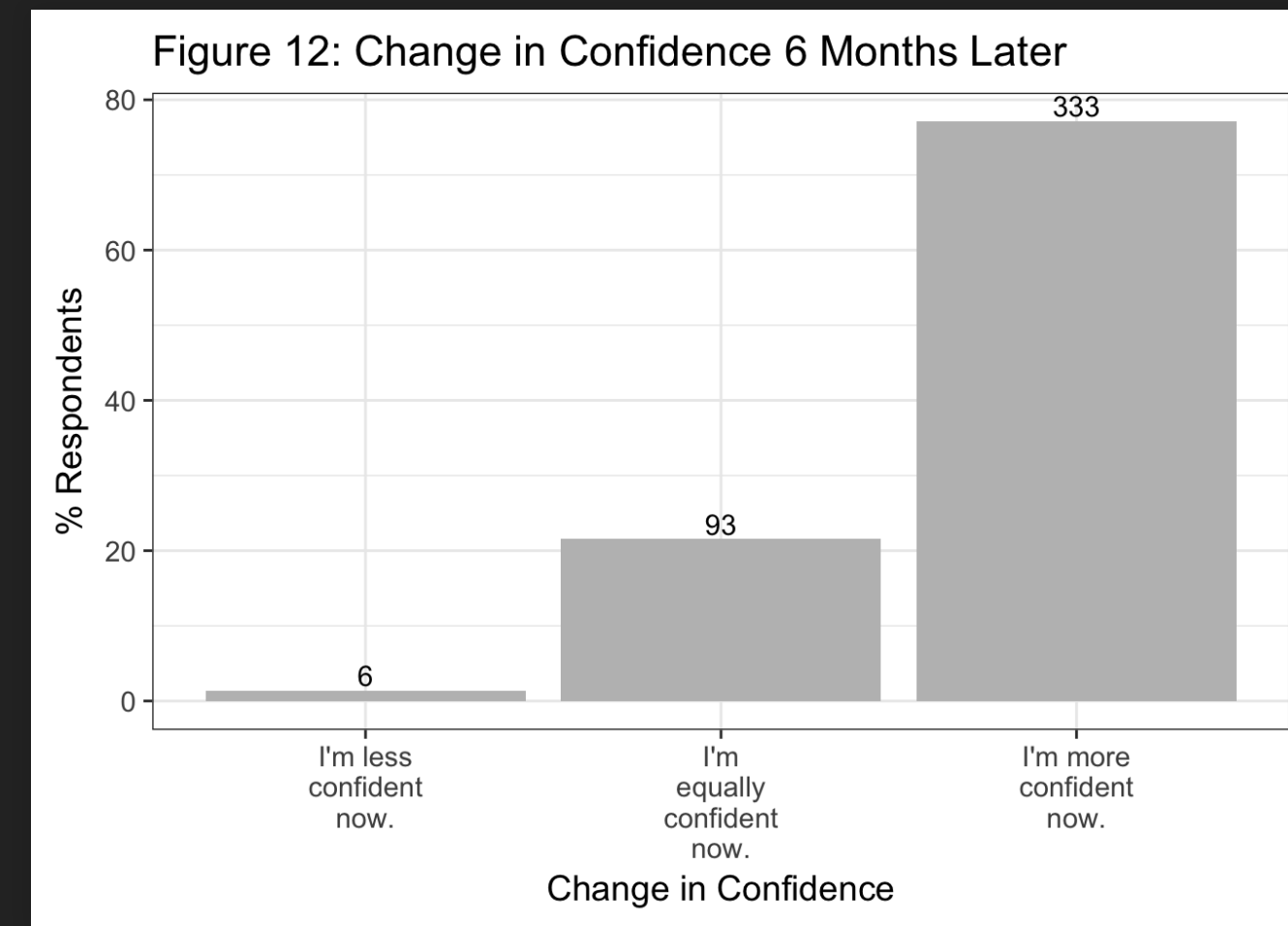
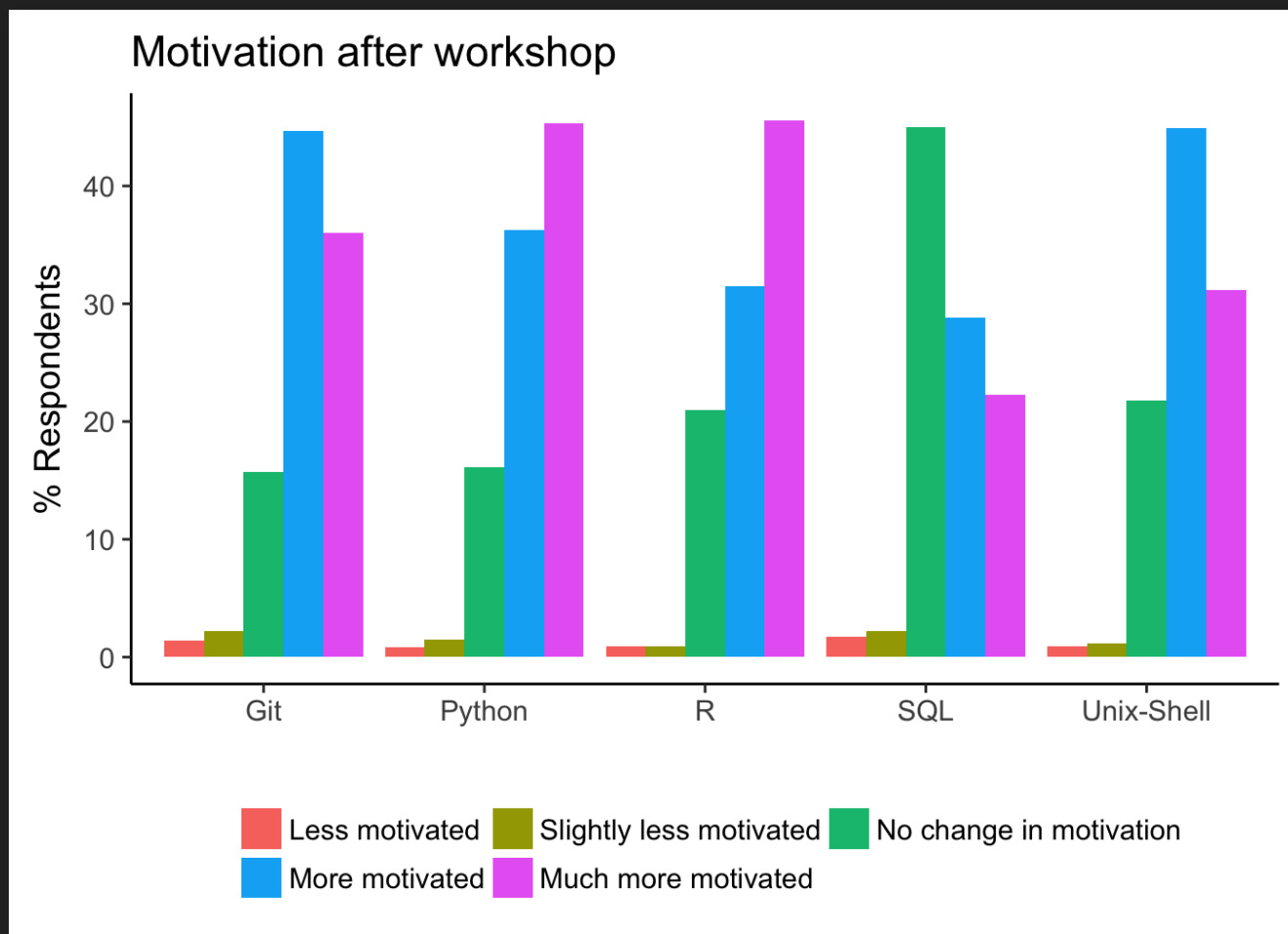
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i Goal: Interactive, Sustainable and Engaging Workshops

CARPENTRIES' EVALUATION



post-workshop survey

long-term assessment

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- career development for young PhDs, PostDocs, Service Staff, RGLs, ...

SUCCESS STORIES



Joyce Kao @joyceykao · Feb 3

Sticky note color system for interactive teaching (signalling for help/answering multiple choice).....#genius #NEUBIATrainingSchools #TS10 @haesleinhuepf



1 3

IS THERE DEMAND?

COURSES BY SCIENTISTS

- IMPRS Computational Biology Bootcamp (CSBD labs)
- [Dresden Summer School in Systems Biology](#) (Sbalzarini+Zechner Lab, TUD)
- MPI CBG Statistics Courses (Zechner Lab)
- [Deep Learning Bootcamp](#) (Myers & Jug Lab)
- [dais learnathons](#) (Jug lab)
- [BioDIP CARE Tutorial](#) (Myers & Jug lab)

COURSES BY S&F

- introductory courses (SciComp):
 - HPC
 - image analysis
 - data science
 - coding
- Knime & cell profiler courses (TDS)

PROPOSAL: 3 YEAR SILVER MEMBERSHIP IN DRESDEN

BENEFITS

- 6 instructors trained per year
(spaces shared)
- increased teaching effectiveness
(more time for science)
- community to improve & deliver good teaching
- port methods to other fields (image analysis, ML, ...)
- [Helmholtz-Center Dresden-Rossendorf](#) is willing to participate

COSTS

- shared among partners
 - total: \$ 7500 p.a.
 - CSBD and HZDR \$ 3750 p.a. each
 - CSBD Executive Council covers \$ 1875
 - RGLs of CSBD candidates cover \$ 625
- test phase for 1 year for now

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- certification procedure (sign-off afterwards)
- 2 bootcamps required by each candidate

SUMMARY

THE CARPENTRIES

- open, sustainable and modern teaching of computational skills in academia
- looking for individuals at CSBD/HZDR to create a carpentries community in Dresden
- expression of interest to become an instructor from 3.5 CSBD staff

Thank you for your Attention!

YOUR FEEDBACK

Etherpad

FURTHER READING

- [Carpentries Annual Report \(Brochure\)](#)
- [Software Carpentry: lessons learned \(Open Access Paper\)](#)
- [continuous post-workshop survey reports](#)
- [long-term assessment](#)
- [Pycon 2014 Talk: Lessons Learnt \(Youtube Recording\)](#)