Towards reproducible (MM)LA-Research

Jan Schneider, Daniel Schiffner
DIPF|Leibniz Institute for Research and Information in Education
{schneider.jan, schniffner} @dipf.de

ABSTRACT: To support science, the GOFAIR initiative proposes researchers to share their research data following the FAIR principles, which state that data should be findable, accessible, interoperable, and reusable. We argue that in the current state this initiative just puts an extra burden in the hands of researchers. To address this problem, in this LAKATHON Challenge we aim to design a system that allows researchers to plan, organize, store, share research activities and publish research contributions following the GOFAIR principles.

Keywords: GOFAIR, LAKATHON, Learning Analytics

1 INTRODUCTION

Science is a systematic endeavor whose aim is to build and organize knowledge based on unbiased observations that can be tested and used to make predictions about the universe (Wilson, 1999; Britannica, T. Editors of Encyclopaedia, 2020). Science allows us to attain knowledge that is objective, generalizable, verifiable, reliable, replicable, consistent, applicable, open to criticism, etc. To facilitate the process of generating and sharing this type of knowledge, initiatives such as the GOFAIR are being pushed forward.

The GOFAIR initiative proposes a series of principles for scientific data management stating that scientific data should be Findable, Accessible, Interoperable, and Reusable (Wilkinson et al., 2016). While these principles have been created with the purpose to support the scientific process, in practice implementing them is a difficult task. Conducting scientific research is a process already full of complexities and obstacles, the act of publishing research data based on the GOFAIR principle currently is just extra work thus one more hurdle for researchers. Moreover, in the case of Learning Analytics (LA) and especially in Multimodal Learning Analytics (MMLA), the technology, methods, and scripts used to collect and analyze data change incredibly fast. Therefore, preserving the data in a FAIR format does not necessarily make them reusable. On the other hand, the technologies, methods, scripts, etc. used to collect and analyze the data in many cases are the important contributions in the field of LA and MMLA.

To support LA and MMLA researchers, we envision the creation of a research portfolio that allows researchers to plan, organize, store, share, and when the time is right publish their contributions in a FAIR format. The aim of this LAKATHON challenge is to engage with LA experts from all over the world to design a GOFAIR research portfolio.

2 GOFAIR RESEARCH PORTFOLIO

The GOFAIR research portfolio aims to address integration of data and research methods whilst providing useful feedback on the GOFAIR principles. Instead of an additional burden, the system helps to provide useful information that is required by 3rd-parties to understand the methodology. It provides support for structuring your research by identifying external and internal dependencies.

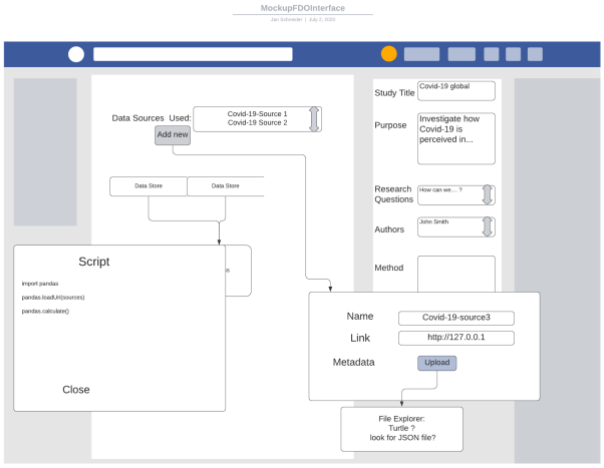

Figure 1. Mockup user interface from the GOFAIR Research Portfolio

3 PROPOSED ACTIVITIES FOR LAKATHON

Within the limited time frame of the LAKathon, we plan to collect feedback from experts on LA research and identify key elements that should be represented within a research portfolio. With our background knowledge on GOFAIR, we then highlight examples where different types of interventions are required. We finish with a discussion for new research on the support and solutions toward a simple and effective tool that supports the already complex research process.

REFERENCES

Britannica, T. Editors of Encyclopaedia (2020, June 15). *Science*. *Encyclopedia Britannica*. https://www.britannica.com/science/science

van Vlijmen, H., Mons, A., Waalkens, A., Franke, W., Baak, A., Ruiter, G., ... & Neefs, J. M. (2020). The need of Industry to go FAIR. *Data Intelligence*, *2*(1-2), 276-284.

Wilkinson, M. D., Dumontier, M., Aalbersberg, I. J., Appleton, G., Axton, M., Baak, A., ... & Mons, B. (2016). The FAIR Guiding Principles for scientific data management and stewardship. *Scientific data*, *3*(1), 1-9.Wilkinson, M. D., Dumontier, M., Aalbersberg, I. J., Appleton, G., Axton, M., Baak, A., ... & Mons, B. (2016). The FAIR Guiding Principles for scientific data management and stewardship. *Scientific data*, *3*(1), 1-9.

Wilson, E. O. (1999). The natural sciences. *Consilience: The unity of knowledge*, 49-71.