Career Episode Piece 3: Being Responsible in Innovation

Student ID: u7351505, Name: Yifan Luo, Submission Date: 2022-10-17

# Introduction and overview

In this career episode, the writer analyzed how to be responsible for innovation (RI) from three perspectives: Anticipation, reflection, and stakeholders. In each section, the writer first revisited his working experience as a research assistant (RA) at different colleges, then discussed a few of examples in terms of the three topics, which mainly focused on what he had done in the past and what he need to be improved in the future. In the end, the writer purposed some ideas and suggestions about RI based on his previous discussion through his reflective thinking.

# Analysis and connections: What is RI as a RA in colleges?

Responsible innovation (RI) is a process that considers the comprehensive impacts of research from different angles and makes the innovation reliable to individuals and society without unintended negative influences. According to the definition and what the writer learned in this career episode, he classified RI into the following three classes based on a framework proposed by Andrew Maynard [1] and discussed each topic with examples from his experience as a research assistant (RA).

## Anticipation

The first is the anticipation during research. This reflects the responsiveness when researchers are working on their RI process. In 2021, when the writer was working as a RA at Fujian Medical University (FJMU), he was mainly responsible for data cleaning and modelling for genetic datasets. During that time, he was not very engaged in the research project, most of the analysis results were from experiment routines and pre-defined pipelines. As a result, the lack of responsiveness drove only non-innovative and trivial conclusions till the end of his research.

## Reflection

The second is the reflexivity over past experience and strategies. Before the writer started his RA at FJMU, he already had a year of research experience when he was a bachelor’s student at Southwest University (SWU). During that time, he worked with a professor and focused on new a clustering algorithm. The project needs researchers to have an understanding of machine learning (ML) knowledge and skills, which help lay the foundations for his RA at FJMU. Besides, the writer also learned basic research strategies from this experience such as paper reading and coding skills, which benefit his later study at ANU and his future work.

## Stakeholder analysis

The third is stakeholder analysis based on system thinking. Stakeholder involvement plays a key role during RI in terms of responsibility. RI assumes that stakeholders generally cooperate and align interests and harmoniously strive for consensus. Based on the writer’s research experience, stakeholder analysis and system thinking are challenging and sometimes under-valued by him. Before this career episode, only technical issues such as training models and results analysis are considered while he was doing his research. After learning from this topic and the previous two, he knows how to put one project into a bigger picture by considering related stakeholders in its RI system. More specifically, he learned how to use stakeholder analysis skills such as the four-quadrant diagram to evaluate each factor involved, which will help him consider his research in a more responsible way.

# Looking forward in terms of RI

In the supplementary materials of this course, a table of questions for RI was introduced by Jack Stilgoe, etc. [2]. Also, some barriers to RI were proposed by Evelien de Hoop, etc. [3]. In this last section, the writer suggested two to-dos for his future study based on his RA experience above. First, anticipation with interests and passions. In any work involving the research & design process (R&D), digging into personal-interested ideas is the most important thing during a long-term RI. Besides, passion plays a key role in encouraging individuals to think wider and deeper, making people more sensitive to the responsibility of their research. Second, work smart with experience and learn from mistakes. Learning from experience and mistakes is a good way to help individuals improve their RI ability in their future work. For example, making a stakeholder analysis at the start of any research helps researchers to build a better understanding of their project, and become more effective by considering stakeholders’ feedback.

# References

1. Maynard, Andrew. "Responsible development of new technologies critical in complex, connected world." The Conversation US. https://theconversation. com/responsible-development-of-new-technologiescritical-in-complex-connected-world-38195 (2015).
2. Stilgoe, Jack, Richard Owen, and Phil Macnaghten. "Developing a framework for responsible innovation." The Ethics of Nanotechnology, Geoengineering and Clean Energy. Routledge, 2020. 347-359.
3. De Hoop, Evelien, Auke Pols, and Henny Romijn. "Limits to responsible innovation." Journal of Responsible Innovation 3.2 (2016): 110-134.