Facilitating Knowledge Transfer of Data Sharing Practices

Pamela Andrews

Digital Projects Unit, University of North Texas,
Denton, TX 76201, USA
E-mail: pamela.andrews@unt.edu

The recent movement toward open data sharing at the federal funding level has initiated widespread conversations on data sharing practices and compliance with open data mandates. While resources have been created to demonstrate how researchers can comply with federal mandates, few resources have addressed data sharing practices that play a role in how this information is generated and utilized. This poster utilizes the Nonaka and Takeuchi (1995) knowledge transfer spiral model to understand hesitations in adopting data sharing behaviors, and guidelines for creating resources that can address these knowledge conversions for researchers.

Keywords: data sharing; knowledge conversion; open data

1. Background

This poster visualizes the communication of data sharing practices among researchers using the SEIC knowledge transfer spiral model developed by Nonaka and Takeuchi (1995). The recent movement by federal funding agencies toward open data sharing has raised a number of questions by members of the academic community who have not adopted data sharing behaviors. While numerous resources exist to describe the new requirements for data sharing, there is a distinct lack of tools and templates to facilitate these behaviors. As described by Cameron Neylon (2017), researchers find few if any tutorials, guidance, or best practices for data management, with most resources providing either very detailed technical information about the data itself, or high-level general information about data management overall. A 2009 Insight survey on data preservation found that the three largest needs identified by data mangers,

aside from infrastructure, are more resources, more knowledge/expertise, and training (PARSE, 2009).

2. Concept Model

Nonaka and Takeuchi (1995) describe a model of knowledge conversion consisting of four modes: socialization, externalization, combination, and internalization (SECI). The recursive nature of these exchanges results in a spiral through which the social sphere of this knowledge is expanded from the individual, the group, the organization, and back to the individual. This spiral model provides a method for mapping data sharing practices and further understanding their relationship to the exchange of knowledge of these practices between researchers as individuals, groups, and organizations. While this model has been critiqued for including methods of exchange as conversion and difficulties to apply within a Western management environment (Bratianu, 2010), its use to describe communication of practices matches patterns of communication within academic and research institutions which advocate collaboration rather than top-down management hierarchies.

3. Resource Types to Model Modes

By mapping resources onto the types of knowledge exchanged at each junction, these resources can better facilitate the creation and distribution of knowledge as to how resources can adapt data sharing practices. Table 1 proposes example resources mapped onto these models demonstrating how these resources can enter and circulate through the SECI spiral model.

Table 1. SECI Spiral Nodes, Exchanges, and Example Communication Practices to Facilitate Exchange.

Model Mode	Exchange Type	Example of Resource
Socialization	Tacit to Tacit	Anecdotes
Externalization	Tacit to Explicit	FAQ, Panels, Blog

Combination	Explicit to Explicit	Publications
Internalization	Explicit to Tacit	Documentation

By mapping resources to each mode of the model, researchers at any level of familiarity can access the stage of knowledge exchange appropriate for their needs. This map can also help information specialists arrange resources in anticipation of the researcher's level of familiarity.

4. Conclusion

Each of these modes--socialization, externalization, combination, and internalization--are derived from exchanges with information on data sharing behaviors, whether through fellow practitioners, online resources, or other scholarship. These exchanges aid in the concretization of their practices, for a range of best practices that can be found as both described and enacted. By following these models of knowledge conversion, librarians can best facilitate the finding and/or creation of resources that can move a researcher through these modes.

References

1. Bratianu, C. (2010). A critical analysis of Nonaka's model of knowledge dyanmics. Proceedings of the 2nd European Conference on Intellectual Capital. Reading, UK: Academic Publishing Limited.
2. Neylon, C. (2017). As a researcher…I'm a bit bloody fed up with data management. *Science in the Open*. Retrieved from https://cameronneylon.net/blog/as-a-researcher-im-a-bit-bloody-fed-up-with-data-management/
3. Nonaka, I., & Takeuchi, Hirotaka, T. (1995). *How Japanese Companies Create the Dynamics of Innovation*. Oxford, UK: Oxford University Press.
4. PARSE. (2017). First insights into digital preservation of research output in Europe. Available at http://libereurope.eu/wp-content/uploads/PARSE-Insight_D3-5_InterimInsightReport_final.pdf.