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| *DIL Skill* | *Examples of this Skill* |
| **Cultures of Practice** | * Recognizes the practices, values, and norms of his/her chosen field, discipline, or sub-discipline as they relate to managing, sharing, curating, and preserving data. * Recognizes relevant data standards of his/her field (metadata, quality, formatting, etc.) and understands how these standards are applied |
| **Data Conversion and Interoperability** | * Is proficient in migrating data from one format to another. * Understands the risks and potential loss or corruption of information caused by changing data formats. * Understands the benefits of making data available in standard formats to facilitate downstream use. |
| **Data Curation and Re-use** | * Recognizes that data may have value beyond the original purpose, to validate research, or for use by others. * Is able to distinguish which elements of a data set are likely to have future value for self and for others. * Understands that curating data is a complex, often costly endeavor that is nonetheless vital to community-driven e-research. * Recognizes that data must be prepared for its eventual curation at its creation and throughout its lifecycle. * Articulates the planning and activities needed to enable data curation, both generally and within his/her local practice. * Understands how to cite data as well as how to make his/her data citable. |
| **Data Management and Organization** | * Understands the lifecycle of data, develops data management plans, and keeps track of the relation of subsets or processed data to the original data sets. * Creates standard operating procedures for data management and documentation. |
| **Data Preservation** | * Recognizes the benefits and costs of data preservation. * Understands the technology, resources, and organizational components of preserving data. * Utilizes best practices in preparing data for its eventual preservation during its active lifecycle. * Articulates the potential long term value of his/her data for him/herself or others and is able to determine an appropriate preservation timeframe. * Understands the need to develop preservation policies and is able to identify the core elements of such policies. |
| **Data Processing and Analysis** | * Is familiar with the basic data processing and analysis tools and techniques of the discipline or research area. * Understands the effect that these tools may have on the data. * Uses appropriate workflow management tools to automate repetitive analysis of data. |
| *DIL Skill* | *Examples of this Skill* |
| **Data Quality and Documentation** | * Recognizes, documents and resolves any apparent artifacts, incompletion, or corruption of data. * Utilizes metadata to facilitate an understanding of potential problems with data sets. * Documents data sufficiently to enable reproduction of research results and data by others. * Tracks data provenance and clearly delineates and denotes versions of a data set. |
| **Data Visualization and Representation** | * Proficiently uses basic visualization tools of discipline. * Avoids misleading or ambiguous representations when presenting data in tables, charts, diagrams, etc. * Chooses the appropriate type of visualization, such as maps, graphs, animations, or videos, based on their understanding of the reason / purpose for visualizing or displaying data. |
| **Databases and Data Formats** | * Understands the concept of relational databases and how to query those databases, * Becomes familiar with standard data formats and types for their discipline. * Understands which formats and data types are appropriate for different research questions. |
| **Discovery and Acquisition** | * Locates and utilizes disciplinary data repositories. * Evaluates the quality of the data available from external sources. * Not only identifies appropriate external data sources, but also imports data and converts it when necessary, so it can be used locally. |
| **Metadata and Data Description** | * Understands the rationale for metadata and proficiently annotates and describes data so it can be understood and used by self and others. * Develops the ability to read and interpret metadata from external disciplinary sources. * Understands the structure and purpose of ontologies in facilitating better sharing of data. |
| **Ethics, including citation of data** | * Develops an understanding of intellectual property, privacy and confidentiality issues, and the ethos of the discipline when it comes to sharing and administering data. * Acknowledges data from external sources appropriately. * Avoids misleading or ambiguous representations when presenting data. |