

# Data Information Literacy (DIL) Skills

<i>DIL Skill</i>	<i>Examples of this Skill</i>
<b>Cultures of Practice</b>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Recognizes relevant data standards of his/her field (metadata, quality, formatting, etc.) and understands how these standards are applied</li> </ul>
<b>Data Conversion and Interoperability</b>	<ul style="list-style-type: none"> <li>• Is proficient in migrating data from one format to another.</li> <li>• Understands the risks and potential loss or corruption of information caused by changing data formats.</li> <li>• Understands the benefits of making data available in standard formats to facilitate downstream use.</li> </ul>
<b>Data Curation and Re-use</b>	<ul style="list-style-type: none"> <li>• Recognizes that data may have value beyond the original purpose, to validate research, or for use by others.</li> <li>• Is able to distinguish which elements of a data set are likely to have future value for self and for others.</li> <li>• Understands that curating data is a complex, often costly endeavor that is nonetheless vital to community-driven e-research.</li> <li>• Recognizes that data must be prepared for its eventual curation at its creation and throughout its lifecycle.</li> <li>• Articulates the planning and activities needed to enable data curation, both generally and within his/her local practice.</li> <li>• Understands how to cite data as well as how to make his/her data citable.</li> </ul>
<b>Data Management and Organization</b>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Creates standard operating procedures for data management and documentation.</li> </ul>
<b>Data Preservation</b>	<ul style="list-style-type: none"> <li>• Recognizes the benefits and costs of data preservation.</li> <li>• Understands the technology, resources, and organizational components of preserving data.</li> <li>• Utilizes best practices in preparing data for its eventual preservation during its active lifecycle.</li> <li>• Articulates the potential long term value of his/her data for him/herself or others and is able to determine an appropriate preservation timeframe.</li> <li>• Understands the need to develop preservation policies and is able to identify the core elements of such policies.</li> </ul>
<b>Data Processing and Analysis</b>	<ul style="list-style-type: none"> <li>• Is familiar with the basic data processing and analysis tools and techniques of the discipline or research area.</li> </ul>

DIL Competencies from Carlson, J., Fosmire, M., Miller, C., & Sapp Nelson, M. (2011). Determining data information literacy needs: A study of students and research faculty. *portal: Libraries and the Academy*, 11(2), 629-657. DOI: 10.1353/pla.2011.0022. Table reprinted from Carlson & Johnston. (2015). *Data Information Literacy: Librarians, Data, and the Education of a New Generation of Researchers*. Purdue University Press: West Lafayette, IN.

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	<ul style="list-style-type: none"> <li>• Understands the effect that these tools may have on the data.</li> <li>• Uses appropriate workflow management tools to automate repetitive analysis of data.</li> </ul>
<i>DIL Skill</i>	<i>Examples of this Skill</i>
<b>Data Quality and Documentation</b>	<ul style="list-style-type: none"> <li>• Recognizes, documents and resolves any apparent artifacts, incompleteness, or corruption of data.</li> <li>• Utilizes metadata to facilitate an understanding of potential problems with data sets.</li> <li>• Documents data sufficiently to enable reproduction of research results and data by others.</li> <li>• Tracks data provenance and clearly delineates and denotes versions of a data set.</li> </ul>
<b>Data Visualization and Representation</b>	<ul style="list-style-type: none"> <li>• Proficiently uses basic visualization tools of discipline.</li> <li>• Avoids misleading or ambiguous representations when presenting data in tables, charts, diagrams, etc.</li> <li>• 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.</li> </ul>
<b>Databases and Data Formats</b>	<ul style="list-style-type: none"> <li>• Understands the concept of relational databases and how to query those databases,</li> <li>• Becomes familiar with standard data formats and types for their discipline.</li> <li>• Understands which formats and data types are appropriate for different research questions.</li> </ul>
<b>Discovery and Acquisition</b>	<ul style="list-style-type: none"> <li>• Locates and utilizes disciplinary data repositories.</li> <li>• Evaluates the quality of the data available from external sources.</li> <li>• Not only identifies appropriate external data sources, but also imports data and converts it when necessary, so it can be used locally.</li> </ul>
<b>Metadata and Data Description</b>	<ul style="list-style-type: none"> <li>• Understands the rationale for metadata and proficiently annotates and describes data so it can be understood and used by self and others.</li> <li>• Develops the ability to read and interpret metadata from external disciplinary sources.</li> <li>• Understands the structure and purpose of ontologies in facilitating better sharing of data.</li> </ul>
<b>Ethics, including citation of data</b>	<ul style="list-style-type: none"> <li>• Develops an understanding of intellectual property, privacy and confidentiality issues, and the ethos of the discipline when it comes to sharing and administering data.</li> <li>• Acknowledges data from external sources appropriately.</li> <li>• Avoids misleading or ambiguous representations when presenting data.</li> </ul>

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