Digital Data Curation
A Story of Organization & Discovery

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Manager of Data Curation, Harvard Dataverse
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“Digital Curation” can be defined as “the active management and preservation of digital resources over the life-cycle of scholarly and scientific interest, and over time for current and future generations of users.” (Joint Information Systems Committee 2003).

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Why, what, how, and what if...

Why:
To safeguard the huge investment of time and resources

What:
Organization and management of data for discoverability, re-use, and preservation

How:
Standards

What if?....

http://www.dcc.ac.uk/digital-curation/why-preserve-digital-data

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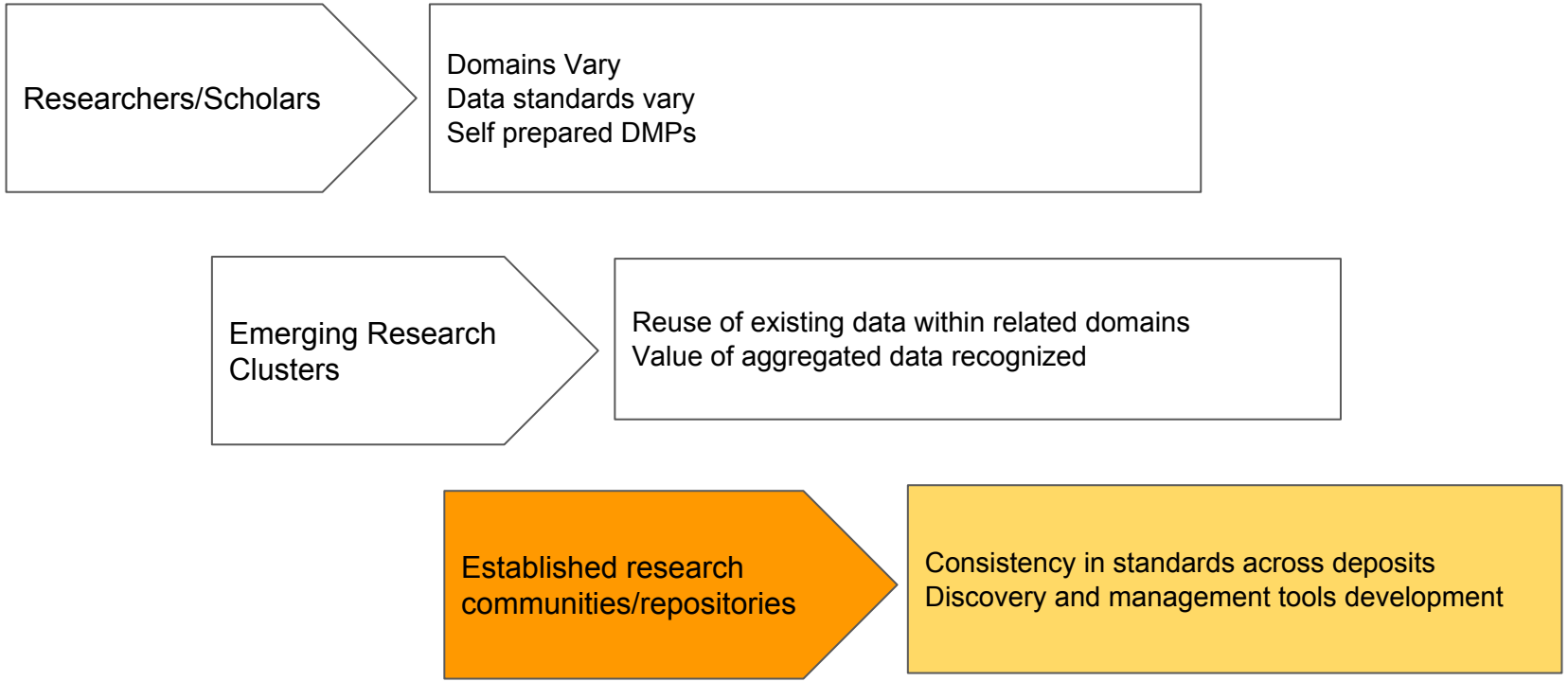
Data Curation Flow...



Barbara E. Pralle, RDAP, March, 2012 Data Curation Services Model: John Hopkins University https://www.slideshare.net/asist_org/data-curation-models-jhu-barbara-pralle-rdap12/3

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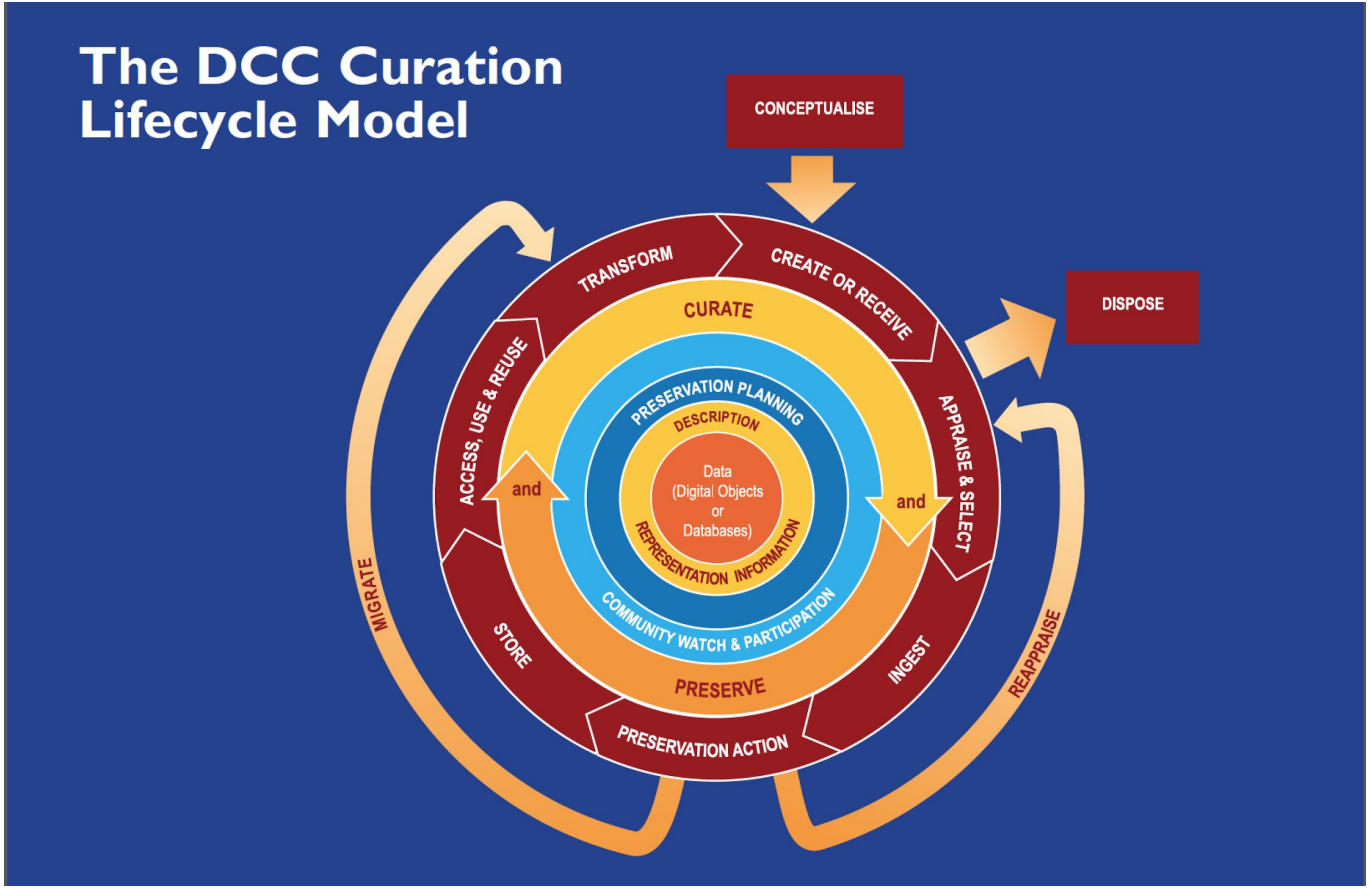

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The Curation Lifecycle

The DCC Curation Lifecycle Model provides a graphical high level overview of the stages required for successful curation and preservation of data from initial conceptualisation or receipt. The model can be used to plan activities within an organisation or consortium to ensure that all necessary stages are undertaken, each in the correct sequence. The model enables granular functionality to be mapped against it; to define roles and responsibilities, and build a framework of standards and technologies to implement. It can help with the process of identifying additional steps which may be required, or actions which are not required by certain situations or disciplines, and ensuring that processes and policies are adequately documented.

Data (Digital Objects or Databases)

Data, any information in binary digital form, is at the centre of the Curation Lifecycle. This includes:

Digital Objects	- Simple Digital Objects are discrete digital items; such as textual files, images or sound files, along with their related identifiers and metadata. - Complex Digital Objects are discrete digital objects, made by combining a number of other digital objects, such as websites.
Databases	Structured collections of records or data stored in a computer system.

Full Lifecycle Actions

Description and Representation Information	Assign administrative, descriptive, technical, structural and preservation metadata, using appropriate standards, to ensure adequate description and control over the long-term. Collect and assign representation information required to understand and render both the digital material and the associated metadata.
Preservation Planning	Plan for preservation throughout the curation lifecycle of digital material. This would include plans for management and administration of all curation lifecycle actions.
Community Watch and Participation	Maintain a watch on appropriate community activities, and participate in the development of shared standards, tools and suitable software.
Curate and Preserve	Be aware of, and undertake management and administrative actions planned to promote curation and preservation throughout the curation lifecycle.

Sequential Actions

Conceptualise	Conceive and plan the creation of data, including capture method and storage options.
Create or Receive	Create data including administrative, descriptive, structural and technical metadata. Preservation metadata may also be added at the time of creation. Receive data, in accordance with documented collecting policies, from data creators, other archives, repositories or data centres, and if required assign appropriate metadata.
Appraise and Select	Evaluate data and select for long-term curation and preservation. Adhere to documented guidance, policies or legal requirements.
Ingest	Transfer data to an archive, repository, data centre or other custodian. Adhere to documented guidance, policies or legal requirements.
Preservation Action	Undertake actions to ensure long-term preservation and retention of the authoritative nature of data. Preservation actions should ensure that data remains authentic, reliable and usable while maintaining its integrity. Actions include data cleaning, validation, assigning preservation metadata, assigning representation information and ensuring acceptable data structures or file formats.
Store	Store the data in a secure manner adhering to relevant standards.
Access, Use and Reuse	Ensure that data is accessible to both designated users and reusers, on a day-to-day basis. This may be in the form of publicly available published information. Robust access controls and authentication procedures may be applicable.
Transform	Create new data from the original, for example - By migration into a different format. - By creating a subset, by selection or query, to create newly derived results, perhaps for publication.

Occasional Actions

Dispose	Dispose of data, which has not been selected for long-term curation and preservation in accordance with documented policies, guidance or legal requirements. Typically data may be transferred to another archive, repository, data centre or other custodian. In some instances data is destroyed. The data's nature may, for legal reasons, necessitate secure destruction.
Reappraise	Return data which fails validation procedures for further appraisal and reselection.
Migrate	Migrate data to a different format. This may be done to accord with the storage environment or to ensure the data's immunity from hardware or software obsolescence.

Creating Data

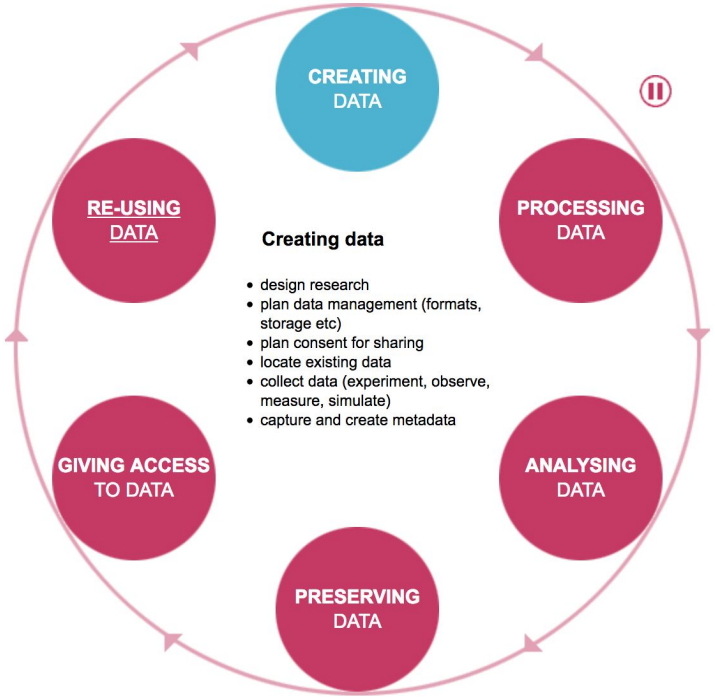
- design research
- plan data management (formats, storage etc)
- plan consent for sharing
- locate existing data
- collect data (experiment, observe, measure, simulate)
- capture and create metadata

Processing Data

- enter data, digitize, transcribe, translate
- check, validate, clean data
- anonymize data where necessary
- describe data
- manage and store data

Analyzing Data

- interpret data
- derive data
- produce research outputs
- author publications
- prepare data for preservation



Research Data Life Cycle

Preserving Data

- migrate data to best format
- migrate data to suitable medium
- backup and store data
- create metadata and documentation
- archive data

Giving Access to Data

- distribute data
- share data
- control access
- establish copyright
- promote data

Re-Using Data

- follow-up research
- new research
- undertake research reviews
- scrutinize findings
- teach and learn

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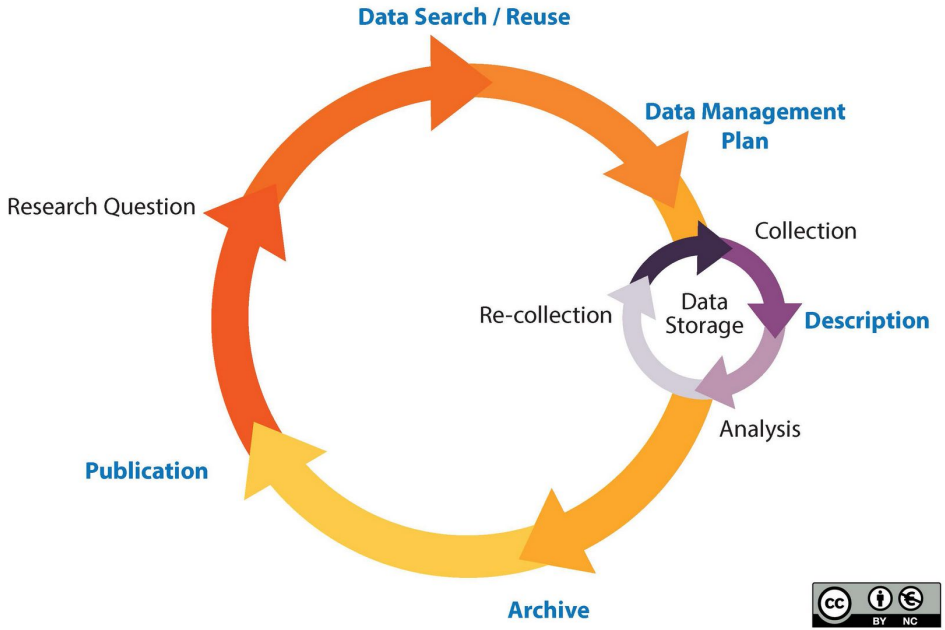
The Research Data Curation Lifecycle



Original Research Data Lifecycle image from University of California, Santa Cruz
http://guides.library.ucsc.edu/datamanagement/

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Data Seal of Approval

The Core Trustworthy Data Repository Requirements

1. The repository has an explicit mission to provide access to and preserve data in its domain.

2. The repository maintains all applicable licenses covering data access and use and monitorscompliance.

3. The repository has a continuity plan to ensure ongoing access to and preservation of its holdings.

4. The repository ensures, to the extent possible, that data are created, curated, accessed, and used in compliance with disciplinary and ethical norms.

5. The repository has adequate funding and sufficient numbers of qualified staff managed through a clear system of governance to effectively carry out the mission.

6. The repository adopts mechanism(s) to secure ongoing expert guidance and feedback (either in-house, or external, including scientific guidance, if relevant).

7. The repository guarantees the integrity and authenticity of the data.

8. The repository accepts data and metadata based on defined criteria to ensure relevance and understandability for data users.

9. The repository applies documented processes and procedures in managing archival storage of the data.

10. The repository assumes responsibility for long-term preservation and manages this function in a planned and documented way.

11. The repository has appropriate expertise to address technical data and metadata quality and ensures that sufficient information is available for end users to make quality-related evaluations.

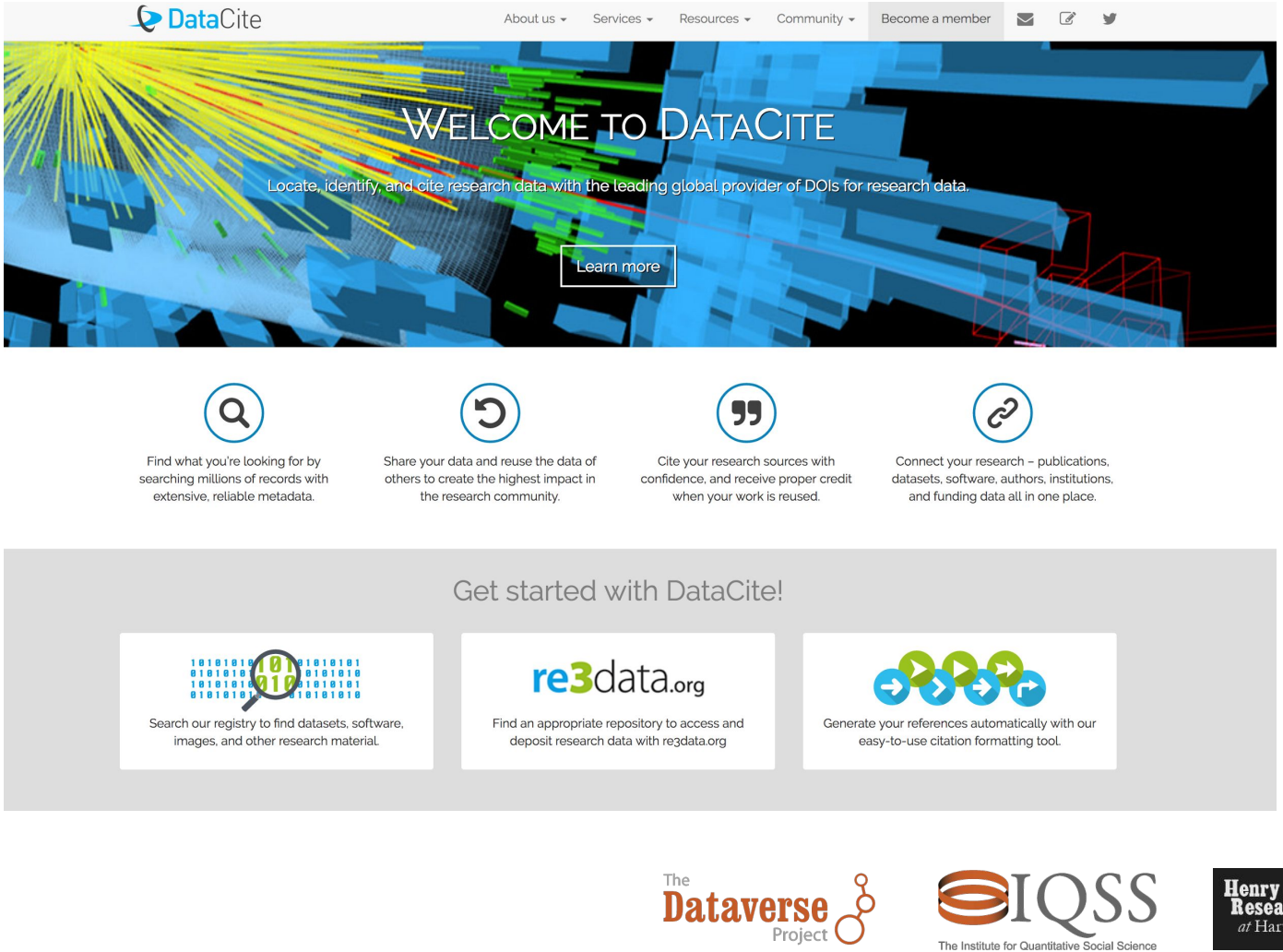
12. Archiving takes place according to defined workflows from ingest to dissemination.

13. The repository enables users to discover the data and refer to them in a persistent way through proper citation.

14. The repository enables reuse of the data over time, ensuring that appropriate metadata are available to support the understanding and use of the data.

15. The repository functions on well-supported operating systems and other core infrastructural software and is using hardware and software technologies appropriate to the services it provides to its Designated Community.

16. The technical infrastructure of the repository provides for protection of the facility and its data, products, services, and users.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About us
Services
Resources
Community
Become a member
WELCOME TO DATACITE
Locate, identify, and cite research data with the leading global provider of DOIs for research data.
Learn more
Find what you're looking for by searching millions of records with extensive, reliable metadata.
Share your data and reuse the data of others to create the highest impact in the research community.
Cite your research sources with confidence, and receive proper credit when your work is reused.
Connect your research – publications, datasets, software, authors, institutions, and funding data all in one place.
Get started with DataCite!
Search our registry to find datasets, software, images, and other research material.
re3data.org
Find an appropriate repository to access and deposit research data with re3data.org
Generate your references automatically with our easy-to-use citation formatting tool.
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The Henry A. Murray Archive & Harvard's Dataverse Repository

- Non-digital --- to semi-digital, Curation Platform
- Managed by Data Curators
- Citation Standards
- Metadata Standards
- Preservation Standards

- Digital Curation Platform
- Self Curation Tool
- Citation Standards
- Metadata Standards
- Preservation Standards

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Data curation is equated with good research

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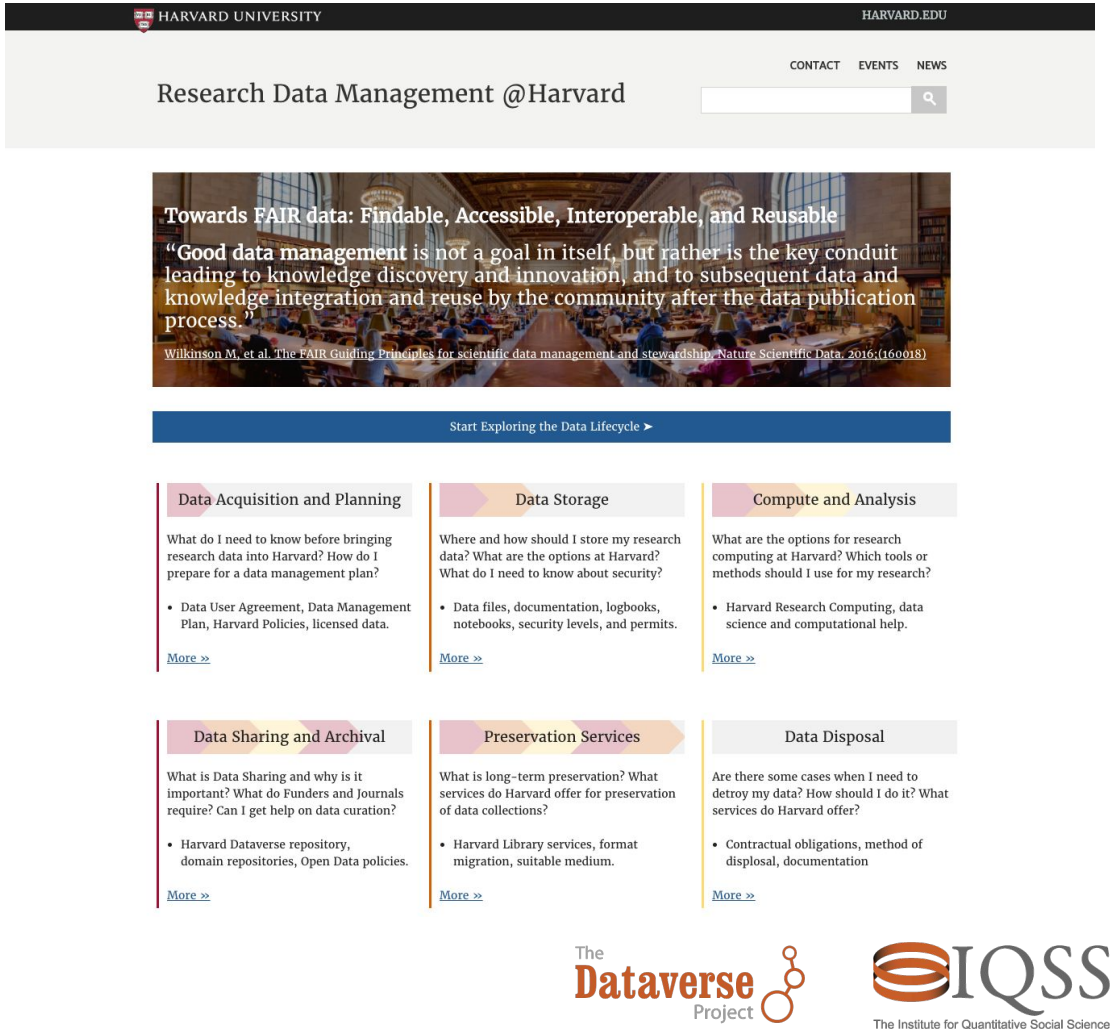
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HARVARD.EDU
CONTACT
EVENTS
NEWS
Research Data Management @Harvard
Towards FAIR data: Findable, Accessible, Interoperable, and Reusable
"Good data management is not a goal in itself, but rather is the key conduit leading to knowledge discovery and innovation, and to subsequent data and knowledge integration and reuse by the community after the data publication process."
Wilkinson M, et al. The FAIR Guiding Principles for scientific data management and stewardship. Nature Scientific Data. 2016;(160018)
Start Exploring the Data Lifecycle ➤
Data Acquisition and Planning
What do I need to know before bringing research data into Harvard? How do I prepare for a data management plan?
• Data User Agreement, Data Management Plan, Harvard Policies, licensed data.
More »
Data Storage
Where and how should I store my research data? What are the options at Harvard? What do I need to know about security?
• Data files, documentation, logbooks, notebooks, security levels, and permits.
More »
Compute and Analysis
What are the options for research computing at Harvard? Which tools or methods should I use for my research?
• Harvard Research Computing, data science and computational help.
More »
Data Sharing and Archival
What is Data Sharing and why is it important? What do Funders and Journals require? Can I get help on data curation?
• Harvard Dataverse repository, domain repositories, Open Data policies.
More »
Preservation Services
What is long-term preservation? What services do Harvard offer for preservation of data collections?
• Harvard Library services, format migration, suitable medium.
More »
Data Disposal
Are there some cases when I need to detroy my data? How should I do it? What services do Harvard offer?
• Contractual obligations, method of displosal, documentation
More »
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Data Management

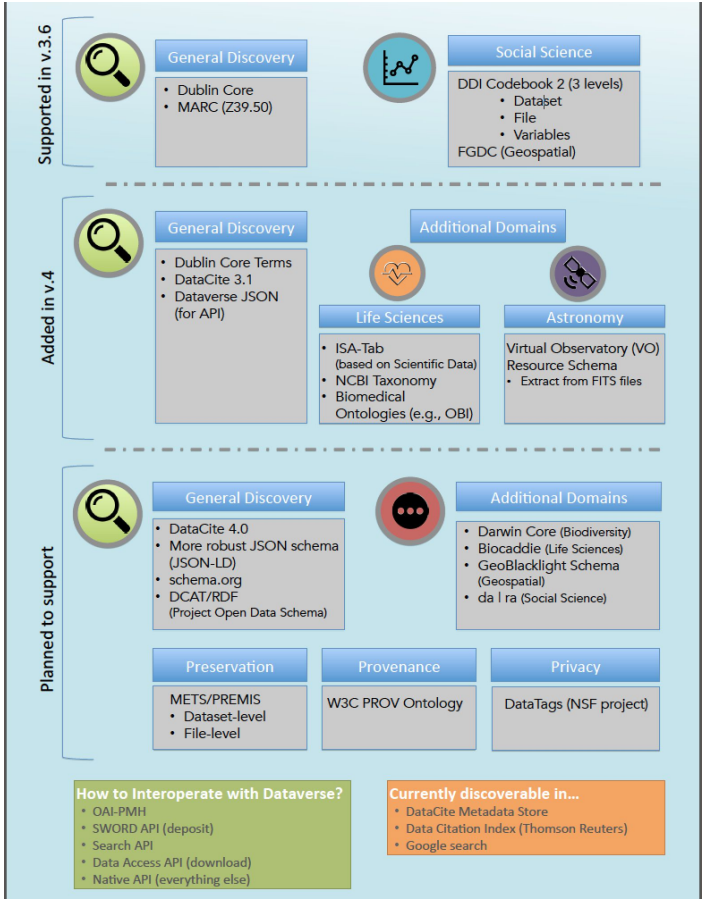
By depositing research data in a Dataverse repository (including Harvard Dataverse) researchers can fulfill funding agency requirements for data management plans.

Creation of a data management plan is a "best practice" for research projects that involve the collection or dissemination of data. Data management plans help to insure that data collected by a project have the integrity, quality, and provenance needed to support the proposed research; and that data necessary for external replication of research findings will be available to the research community.

In addition, many organizations sponsoring research, including many federal agencies and non-profit foundations, require a formal data management plan. Examples of organizations sponsoring research that require a formal data management plan:

- NIH Data Sharing Policy
- NSF Grant Proposal Guide (2013) and NSF's Public Access Plan (2015)
- NIJ's Applying for Data Resources Program Funding

Contact us for assistance with putting together your data management plan. NSF samples for a Checklist for Data Management Plan and a Template for Data Management Plan can be found here.The DMPTool from California Digital Library is also a very helpful resource for guidance on data management plans.



Metadata References

Dataverse is committed to using standard-compliant metadata to ensure that Dataverse metadata can be mapped easily to standard metadata schemas and be exported into JSON format (XML for tabular file metadata) for preservation and interoperability.

Detailed below are what metadata schemas we support for Citation and Domain Specific Metadata in Dataverse:

- Citation Metadata: compliant with DDI Lite, DDI 2.5 Codebook, DataCite 3.1, and Dublin Core's DCMI Metadata Terms (see .tsv version). Language field uses ISO 639-2 controlled vocabulary.
- Geospatial Metadata: compliant with DDI Lite, DDI 2.5 Codebook, DataCite, and Dublin Core (see .tsv version). Country / Nation field uses ISO 3166-1 controlled vocabulary.
- Social Science & Humanities Metadata: compliant with DDI Lite, DDI 2.5 Codebook, and Dublin Core (see .tsv version).
- Astronomy and Astrophysics Metadata : These metadata elements can be mapped/exported to the International Virtual Observatory Alliance's (IVOA) VOResource Schema format and is based on Virtual Observatory (VO) Discovery and Provenance Metadata (see .tsv version).
- Life Sciences Metadata: based on ISA-Tab Specification, along with controlled vocabulary from subsets of the OBI Ontology and the NCBI Taxonomy for Organisms (see .tsv version).

See also the Dataverse 4.0 Metadata Crosswalk: DDI, DataCite, DC, DCTerms, VO, ISA-Tab document.

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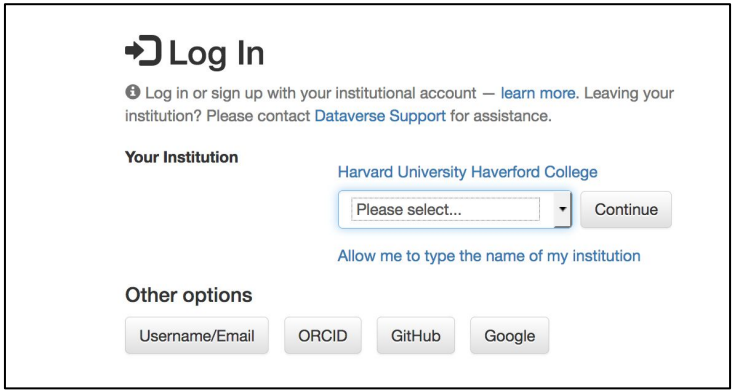

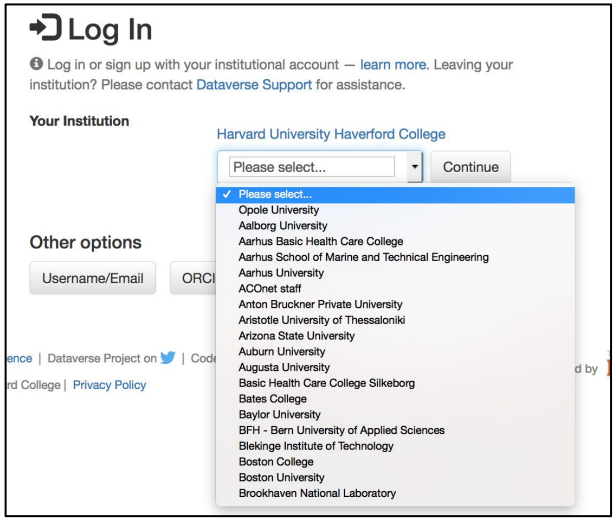

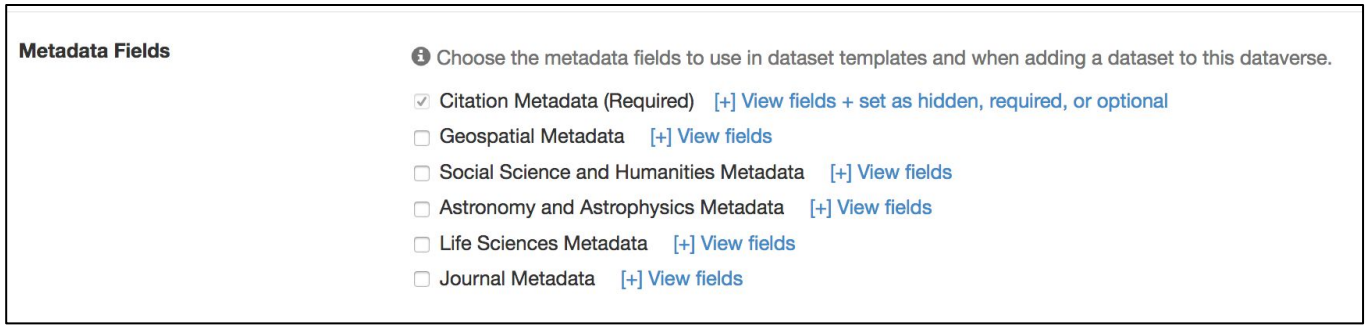

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The Murray Research Archive holds: Baseline Data; Parent Interview and Tracking Data; Parent Services Interview and Exit Interview; Childcare/Teacher Data; Father and Father/Child Data; and Constructs data. The Archive also holds video and audiotape data for this study, along with "Consortium Use Only" files that are restricted to Early Head Start consortium members.

To request the data files, please see the links below in "Related Data."

Audio Data A vailability Note: This study contains audio data that have been digitized. There are 1939 audio files available.

Subject Social Sciences

Keyword Early Head Start, Education, Low Income, Poor Families, African-American, Fathers, Latino

Topic Classification
mra murrayvideo murrayaudio
Over 1000 (Sampsize) http://www.murray.harvard.edu/vocabulary
female,male (Gender) http://www.murray.harvard.edu/vocabulary
mixed (Age) http://www.murray.harvard.edu/vocabulary
African American, Latina/Latino, White, other (Race) http://www.murray.harvard.edu/vocabulary
mixed (SES) http://www.murray.harvard.edu/vocabulary
2 (Generations) http://www.murray.harvard.edu/vocabulary
Special aspects of education (Education) http://authorities.loc.gov/
Family (Family. Marriage. Women.) http://authorities.loc.gov/

Related Publication Friberg, B. L. (2010). Testing theoretical models of aggression and sustained attention development within the context of Early Head Start. (Doctoral dissertation). University of Wisconsin, Madison, WI.

Producer Administration for Children and Families http://www.acf.hhs.gov/programs/opre/ehs/ehs_resrch/index.html
ADMINISTRATION FOR CHILDREN & FAMILIES

Production Date 1996

Terms of Use

Waiver

Our Community Norms as well as good scientific practices expect that proper credit is given via citation. Please use the data citation above, generated by the Dataverse.

No waiver has been selected for this dataset.

Terms of Use

- The Murray Archive (the Distributor) has granted me a revocable license to use this dataset solely for the purposes of conducting research, and the Distributor may terminate this license at any time and for any reason.
- I will use the dataset solely for statistical analysis and reporting of aggregated information, and not for investigation of specific individuals or organizations, except when identification i s authorized in writing by the Distributor.
- I will produce no links among the Distributor's datasets or among the Distributor's data and other datasets that could identify individuals or organizations.
- I represent that neither I, nor anyone I know, has any prior knowledge of the possible identities of any study participants in any dataset that I am being licensed to use.
- I will not knowingly divulge any information that could be used to identify individual part icipants in the study, nor will I attempt to identify or contact any study participant, and I agree to use any precautions necessary to prevent such identification.
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- I will not reproduce the dataset except as is necessary for my scholarly purposes. I will destroy the dataset upon the completion of my scholarly work with it.
- I will not share data from the dataset (in any form or by any means) with any third party, including other members of my research team, as I understand that all users of data must obtain the data directly from the Distributor.
- I will make appropriate acknowledgement of the contributor of the dataset as well as the Distributor in any manuscript or presentation (published or unpublished) using the citation standard documented here: http://thedata.org/citation
- THE DISTRIBUTOR MAKES NO WARRANTIES, EXPRESS OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE, REGARDING OR RELATING TO THE DATASET.

Additional Information [+]

Special Permissions Submission of the following Application For The Use Of Data is required to access the data from this study.

Restrictions I will use these data solely for the purposes stated in my application to use data, detailed in a written research proposal. I will honor all agreements and conditions made between the Contributor of the Data and th e study participants, and between the Contributor of the Data and the Henry A. Murray Research Archive, Harvard University, as specified in the Memorandum of Agreement.

Citation Requirements I will include a bibliographic citation acknowledging the use of these data in any publication or presentation in which these data are used. Such citations will appear in footnotes or in the reference section of any such manuscript. I understand the guideline in "How to Cite This Dataset" described in the Summary of this study.

Depositor Requirements Murray Research Archive will list my publication and manuscripts on the Archive website when I submit a bibliographic citation or title of the manuscript, and indicate the Henry A. Murray Research Archive data used. Doing this will also help Henry A. Murray Research Archive to provide funding agencies with essential information about use of archival resources, to fulfill requirements of some memoranda of agreement, and to promote the broader exchange of information about research activities.

Conditions
Videotapes and Audiotapes can only be used on-site at the Murray Archive
Users must submit a credible research plan including an analysis plan and procedures they will use to safeguard the confidentiality of the data
Users must submit a proposal specifying procedures that will be used to protect the confidentiality of videotapes during coding procedures, if applicable
Special permission must be obtained from the contributor to use the videotapes and aud iotapes for any training or teaching purposes other than for training coders of the data
Follow-up of the data are not allowed
All applications will be submitted to the contributors for their records

Early Head Start Research and Evaluation Project, 1996 - 2001

Administration for Children and Families, 2009, "Early Head Start Research and Evaluation Project, 1996 - 2001", hdl:1902.1/00097, Harvard Dataverse, V11

Cite Dataset

Learn about Data Citation Standards.

Description This study page contains cataloging and documentation files (only) related to the *Early Head Start* data archived in the Murray Research Archive Dataverse.

The purpose of this study was to assess the impact of early head start programs in response to the 1994 Head Start reauthorization which established a special initiative for services to families with infants and toddlers. The study was a program evaluation with 1500 families in Early Head Start programs and 1500 in a control group with no program participation.

The participants included 30 00 low-income and poor families (child, mother, and some fathers). The participants were 34% African American, 24% Latino (a), 37% White, and 5% other ethnicity. The children were between 0-12 months at the time of enrollment. The mothers averaged 23 years of age, with over 1/3 of the mothers under the age of 18. Assessments with children and interviews with parents were conducted when children were 14, 24, and 36 months. Parents and children were also assessed at 6, 15, and 24 months after enrollment to ensure that information for comparison group families was comparable to program data on Early Head Start families. Early Head Start program directors and key staff working with children and families were also interviewed.

Program evaluations occurred at 17 sites with matching numbers of participating and control families at each site. The study encompassed five major components: 1) An implementation study which examined service needs and use for low-income families with infants and toddlers, including assessment of program implementation, illuminating pathways to achieving quality, examining program contributions to community change, and identifying and exploring variations across sites; 2) An impact evaluation to analyze the effects of Early Head Start programs on children, parents and families in depth, while assessing outcomes for program staff and communities; 3) Local research studies by researchers to learn more about the pathways to desired outcomes for everyone involved in Early Head Start; 4) Policy studies to respond to information needs in areas of emerging policy-relevant issues, including welfare reform, fatherhood, child care, and children with disabilities; and 5) Formats for continuous program improvements. Multiple data collection method were employed including intensive site visits to the research programs, program documents, parent services follow-up interviews, child care observations, staff surveys, parent reports, direct assessment of children, observations by trained observers, and coding of videotaped parent-child interactions in problem solving and free-play situations.

Variable assessed include variations across the programs, pathways to service quality, service needs and use for low income families with infants and toddlers, program contributions to community change, child and family outcomes, differential effects for families with certain characteristics living in particular contexts, differential impacts related to differences in program implementation, professional development, continuity, and health of staff, relationship building among fami lies and service providers and building collaborative service networks, child-care arrangements available to low-income families over the entire period of the study, children's environments and their relationship with caregivers, child's socioemotional functioning, child's cognitive and language development, parenting and the home environment, parental characteristics, and relationships with fathers and other adults.

The Murray Research Archive holds: Baseline Data; Parent Interview and Tracking Data; Parent Services Interview and Exit Interview; Childcare/Teacher Data; Father and Father/Child Data; and Constructs data. The Archive also holds video and audiotape data for this study, along with "Consortium Use Only" files that are restricted to Early Head Start consortium members.

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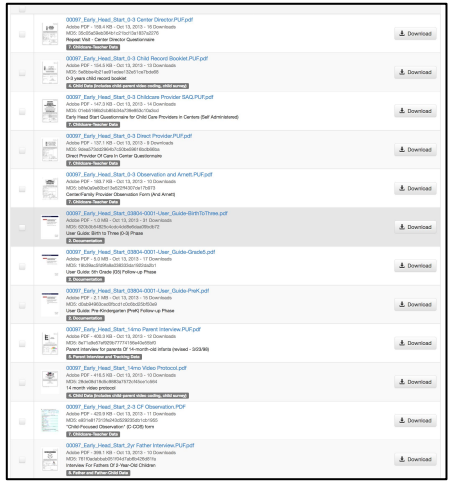
Related Publication Friberg, B. L. (2010). Testing theoretical models of aggression and sustained attention development within the context of Early Head Start. (Doctoral dissertation). University of Wisconsin, Madison, WI.

Dataset Version: 11.1

Files | Metadata | Terms | Versions



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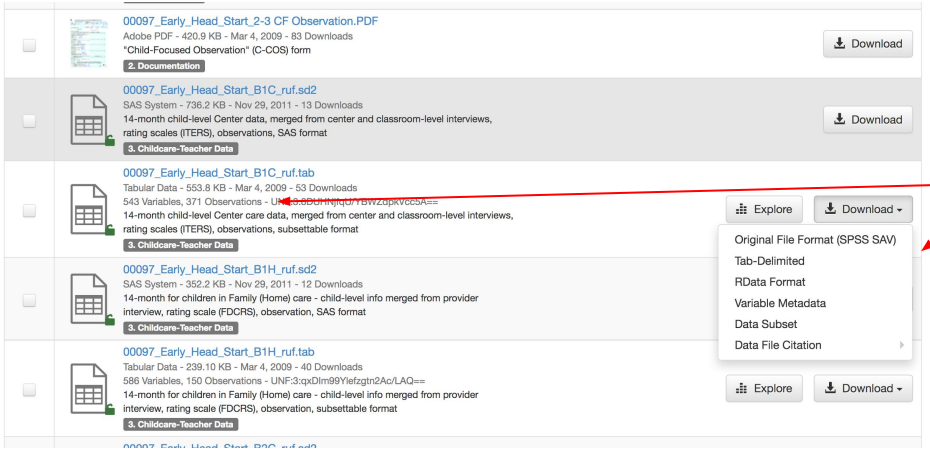
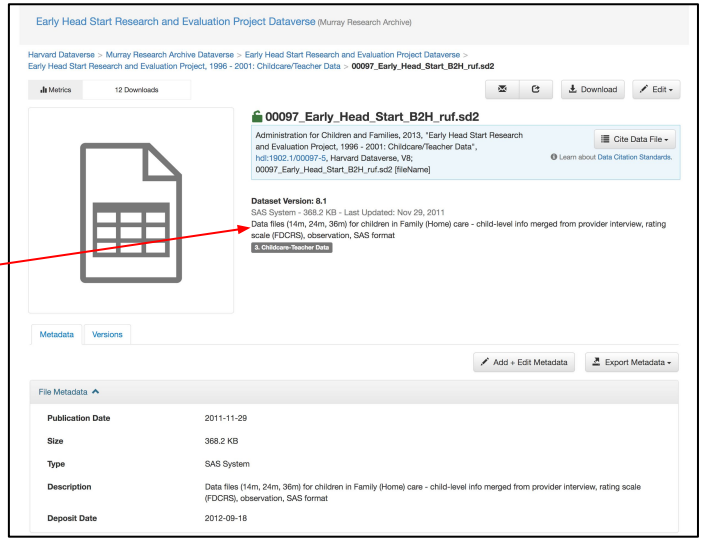


Online data analysis tools
Downloading in multiple options
Metadata extraction/preservation

Dataset metadata
File metadata
File metadata export



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Steps to promote curation and preservation throughout the data lifecycle...

- Conceptualize
- Create
- Access and Use
- Appraise and select
- Dispose

- Ingest
- Preservation Action
- Reappraise
- Store
- Access and Re-use
- Transform

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Who is responsible for Data Curation?

- Data creator-first and foremost!
- Curation specialists
- Librarians
- Archivists
- Metadata Librarians
- Subject specialists

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What if...

- Limited Discovery
- Data not prepared for the intended audience
- Data quality metrics not established or met
- Funding guidelines not met
- Embargoes and restrictions on access not assessed/implemented
- Documentation not available
- Sharing of unnecessary documents
- No policy around issues of resuse and preservation
- Insufficient metadata standards

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References

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The Digital Curation Centre (DCC): http://www.dcc.ac.uk/resources/metadata-standards

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Thank You!

Contact support@dataverse.org with any questions related to data management in a digital environment

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