Analysis and Assessment of MODS Usage in Digital Repositories

Alisha Davis
Department of Information Science, Drexel University
INFO 662: Metadata and Resource Description
Dr. Jung-ran Park
December 13, 2023

Analysis and Assessment of MODS Usage in Digital Repositories

Metadata, or data about data, are the building blocks of all knowledge organization systems and search platforms. Generally, there are four types of metadata: descriptive, administrative, structural, and markup languages. While the purpose of this analysis paper is to focus on accurate and consistent use of descriptive metadata, which are used for finding and examining resources in repositories, the average user interacts with structural data every single day. For example, Google and Wikipedia both depend on user-generated data which they continuously organize into visual graphs or webs. By organizing the data into easily accessible structures, both entities make it easier for users to conduct searches for desired information and their related resources through shared links.

As Libraries, Archives, and Museums (LAMs) began to transition from using physical bibliographic metadata records to digital ones, they had to contend with a major barrier: lack of interoperability. Early digital libraries required schemas, or languages, and controlled vocabulary to help them structure their knowledge so that online users could search for and find specific information. The fourth type of metadata, markup languages, supports interoperability by encoding metadata into a format that is easily transferred to and stored within repositories. EXtensible Markup Language (XML) is a markup language that displays metadata like the branches of a tree, where bigger branches split off to create smaller, thinner branches. It also serves as the foundation for XML-based description metadata, like the Metadata Object Description Schema (MODS), for example. According to Jenn Riley's "Understanding Metadata" primer, "an XML Schema defines the elements that make up a valid document in that format, along

with the attributes each element can take, in what order they can appear, and how many times they can appear" (2017). Without this kind of transfer structure, neither man nor machine would be able to understand what the metadata was describing.

Markup languages, like XML, made it easier to share digitized metadata amongst LAMs, but not if the resource descriptions were recorded using each institution's "do-it-yourself" system and standards. Where one institution might have only associated the element field <genre> with a resource's theme, others used it for describing the format of the resource instead. Therefore, LAMs and other information professionals built descriptive schemas that could support nearly seamless data transfers within the cultural heritage sector. During the 1990s and 2000s, institutions such as the Library of Congress (LoC) and the Getty had developed and tailored their own descriptive metadata schemas for books, audio recordings, moving images, and fine art. Today each domain has, at minimum, one metadata schema to match its needs, like the Text Encoding Initiative for humanities or the Data Documentation Initiative for social sciences. Others, such as Darwin Core or ISO 19115, are for mathematics or the physical sciences. Dublin Core (DC) and MODS, the latter of which is the focus of this analysis, are "common purpose" cross-disciplinary schemas widely used by libraries. Machine Readable Cataloging (MARC), which will be compared to MODS later in this paper, predates these other metadata languages by decades. For this reason, most LAMs use MARC metadata standards within their catalogs.

MARC, which was created by the LoC back in the 1960s, requires a cataloger to learn specific number tags in order to adequately describe a resource. There are over 900 metadata tags that represent specific descriptors within the schema, which is

beyond the needs of numerous LAMs. DC, which was built during the 1990s, served as another cross-disciplinary metadata standard that was simpler to use for laymen who weren't trained cultural heritage professionals. Its biggest "selling point" is its simplicity with only thirteen elements, making it much easier to implement for smaller databases. However, neither of these general purpose schemas fit the needs of burgeoning digital libraries at that time. A lot of them were cataloging complex digital objects which required a richer language than DC, but one that was less specific than MARC.

MODS

At a Glance

In the mid-2000s, the LoC released the Metadata Object Description Schema (MODS), a new XML-based schema that borrows its semantics from MARC but is more user-friendly for digital library professionals. One benefit of MODS' MARC-based roots is the high level of data interoperability between the two schemas, which prevents significant data loss. See Appendix A for the crosswalk mapping table between MARC and MODS (McCallum, 2020). Sitting at its position between DC and MARC on the data-richness scale, MODS' element crosswalks with each of the schemas above create less data loss than one incompatible crosswalk between DC and MARC. Another useful benefit is a single MODS element's capacity to combine and represent multiple, redundant MARC tags. In contrast with MARC, MODS eschews number-based tags for language-based ones and uses just 20 top-level descriptive elements. While MARC utilizes alphabetic variables to communicate additional descriptive information for each element tag, MODS uses optional sub-elements instead. In place of MARC's 900+ tags, MODS offers an element called, <extension>, which allows catalogers to include

attributes that will link to other elements in a record. Not only is MODS interoperable with MARC, but it easily translates to standards within the same cross-interdisciplinary domain, including DC and Encoded Archival Description.

MODS' 20 top-level elements are: [content-related] <titleInfo>, <typeOfResource>, <genre>, <abstract>, <tableOfContents>, <subject>, <physicalDescription>, <targetAudience>, <note>, <part>, <extension>, [intellectual property-related] <originInfo>, <accessCondition> [instantiation-related] <identifier>, <language>, <classification>, <location>, <recordInfo>, [miscellaneous] <relatedItem>, and <extension> (Library of Congress, 2022). While MODS' semantic roots are based in MARC, its limited number of elements, compared to the former, still creates some ambiguity for users. Based on observations of repository metadata records, catalogers have used <genre>, <typeOfResource>, and <physicalDescription> interchangeably describing an item's format. Other instances of ambiguity include <tableOfContents> versus <note>, which is less troublesome as <note> was utilized much more often than <tableOfContents> within the selected records. The two miscellaneous elements, <relatedItem> and <extension>, sound similar, but <relatedItem> refers to another record or collection housed within the library. The use of <extension> is much more open-ended and could refer to materials or institutions outside of the digital library, if relevant. See Appendix B for the MODS top-level elements chart and their attributes.

Research and Analysis: MODS Usage in Digital Repositories

Research Questions

The analysis and assessment of MODS usage within repositories are based on the following five questions:

- Which MODS elements are used most frequently amongst the three chosen repositories, overall and independently?
- Which elements are consistently utilized infrequently amongst the three?
- Which elements are connected to the highest number of description errors?
- Which elements are connected to the highest number of inconsistencies within the records?
- What are the possible barriers to metadata interoperability across these three repositories?

Research and Analysis Methods

Three academic library repositories were selected based on their use of MODS for their descriptive metadata standards. Unlike its contemporaries, such as Dublin Core or the Text Coding Initiative, MODS is not as popular a choice for academic libraries that have relied on MARC standards for decades. For this reason, there were fewer repositories to choose from for this review. In total, sixty MODS records, twenty from each repository, were selected for this evaluation; three metadata mappings were created to display how the repositories' display fields were matched with a relevant MODS element. The metadata records, plus their related metadata mappings, were examined for description completeness, accuracy, consistency, and inclusion of relevant controlled vocabularies, for example the LoC Subject Headings or LoC Name Authority File.

The three selected repositories belong to Columbia University, Brown University, and the Joint Information Systems Committee (JISC). Columbia University, located in

New York City, boasts more than 551,000 files comprising over 267,000 unique items within its digital library collections. While the repository is mostly open to the public[1], its materials are intended for educational and research purposes only ("About", n.d.). All of the 500,000+ files are sourced from four of Columbia's collections: the Avery Architectural & Fine Arts Library, the Burke Library at Union Theological Seminary, the C.V. Starr East Asian Library, and the Rare Book & Manuscript Library. Each item's full-length display field record is easily accessible through the library's CLIO catalog system. Brown University, located in Providence, Rhode Island, hosts the Brown Digital Repository, which in addition to MODS, uses DC and the LoC's Metadata Encoding and Transmission Standard (METS) metadata standards. In contrast to Columbia's library, Brown's repository is meant to serve as steward of digital assets from "scholarly, instructional, research, and administrative" projects within the Brown community. University departments, from Africana Studies to Engineering, have contributed theses and dissertations for preservation; university-sponsored initiatives have deposited their data on sea level rise and air quality in Providence; another collection houses public and open access versions of academic articles published by the Brown community. According to the "About the Brown Digital Repository" page, the university library provides a number of services to the Brown community as listed below:

- "A searchable index of digital objects shared by the Brown community.
- Permanent, secure storage for personal and departmental digital objects.
- Off-site backups of digital content.

[1] Some of the collections held materials that required a Columbia-affiliated username and password for access. However, the password requirement didn't hinder efforts to access any one material's display fields nor its MODS metadata.

- Tools for sharing and publishing digital content.
- Data curation, format migration, and preservation services" (n.d.).

Library Hub Discover, the JISC repository based across the Atlantic Ocean in Ireland and the United Kingdom, represents more than 100 national, academic, and special libraries. This repository differs from Columbia's and Brown's because JISC, the hosting entity, is not a university. Instead it's a data and technology-based agency that has been contracted to maintain the shared database into which Irish and British libraries contribute. The idea underpinning this relationship is that allowing universities to outsource the maintenance of their digital libraries and cybersecurity to JISC will save them hundreds of thousands of pounds annually. JISC references a recent study, commissioned by JISC and completed by Frontier Economics, which provides evidence to support these claims ("Economic benefits of JISC", 2023). These circumstances may explain why Library Hub Discover only accepts records in MARC, since accepting records from hundreds of different catalogs risks substantial data loss if imported standards lack interoperability with the database's schema. Since JISC only hosts the database, the website includes a disclaimer stating that any identified record errors must be directly communicated to the originating library. This alternative setup has the potential to create additional ambiguity if records automatically merged from multiple libraries are imported with preexisting errors ("About Library Hub Discover", n.d.).

Metadata Mapping: Display Fields to Schema Elements

Before collecting data on the accuracy and consistency of each of the three repositories, charts were created for each institution to show how each mapped a record's display labels to a corresponding MODS element. Columbia's mapping was

most consistent and accurate, as the display labels matched the intended definitions of their assigned elements. Any “errors” are subjective and depend on how the cataloger interpreted elements like <genre> and <typeOfResource>, which even the LoC notes are very similar in meaning. JISC came in next due to its member libraries’ liberal interpretations of <note> and <relatedItem> in their MODS metadata records, which impacts consistency. Since both of these elements can be used in a more flexible manner, the element with the highest likelihood for errors is <subject>, which doesn’t leave as much space free for interpretation. Brown’s mapping was more consistent than JISC’s, but its implementation of the schema was flawed. See appendices C, D, and E for the mapping data.

Columbia: The only part of the mapping that could create ambiguity was the use of both <physicalDescription> and <genre> for the display label, genre (Lindquist, 1912-1953). Of the 20 records from the Columbia Digital Library, eight of them did not include <genre> in their MODS metadata. A glance at the display fields show a separate genre and format entry for the same term (i.e. format: ephemera; genre: ephemera). However, the schema code only includes the element <typeOfResource>, which is the umbrella term for format, but not genre. Based on the LoC’s Genre/Form Authority Terms, featured labels, such as ephemera, correspondence, and periodicals are included in the Genre/Form schema, therefore the MODS XML code should include the <genre> element as well.

JISC - Since this institution shares catalogs from over 100 different information institutions, there’s much more variation within the database’s display labels, so a larger emphasis is placed on correctly linking records to their respective libraries. Compared to

the repositories at Columbia and Brown, in which none of the reviewed records included the <extension> element, 100% of JISC's records utilized it to link records with their bibliographic data at the original institutions (Wolf, 1988). The <note> element was mapped to five different display labels (author, physical description, notes, language, contents) instead of their relative MODS elements. The element <subject> was mapped to origin information, genre, subject, and type of resource. Since all MODS elements can serve as subelements to <relatedItem>, it has been mapped to title information, series, location, related item and related internet resources. The wide variation in cataloging is further supported by display labels that have been mapped to at least two different elements; these include author (2), title information (2), type of resource (2), physical description (2), genre (3), origin information (2), notes (3), location (3), language (2), and contents (2) (see Appendix D). As mentioned in the repository overview section of this report, JISC only hosts the catalogs and doesn't edit them since future database syncs will erase any corrections. Member libraries must be contacted directly to address any metadata errors.

Brown: The mappings in this repository were inconsistent and the reasoning for why some fields were mapped to certain MODS elements is unclear. There were observed instances of <subject> and <genre> elements that were mapped to a display field that applied to <typeOfResource>. Many records for photographs didn't include a <language> element for the language of the featured text. Only 10% of the records included a <location> element, while <relatedItem> was often utilized to communicate which collections house them. A possible explanation for this pattern could be that compared to Columbia and JISC, Brown University only has one library and its

repository is meant to steward academic contributions from within the university community only. From that perspective, the catalogers may have assumed that it would be redundant to include <location> and decided that a <relatedItem> element link to the rest of the collection would suffice. Another observation highlighted that some records included a table of contents display field for periodicals, but mapped the information to the <relatedItem – constituent> element in MODS instead. In order to avoid ambiguity, mapping the table of contents display field to the <tableOfContents> elements is more appropriate. Finally, <abstract> was used, almost exclusively, to represent the context of a material, research questions, and material summaries. The following text was mapped to <abstract> even though it's a general statement that was batch-added to several other records within the same collection: "Scenery photograph of the Coachella Valley in California. Site of 1976 school walkouts protesting the Coachella Valley Unified School District's mistreatment of Mexican-American students" ("Coachella Valley scenery", 2005). It would have been more appropriate for this statement to be mapped to <note> since the photograph is of an open field rather than any visual information about racial discrimination or school walkouts.

Use of MODS within Digital Repositories

Raw data from the three repositories are attached to this report.

JISC - This database had the highest average rate of record accuracy and completeness at 71.25% out of a possible 100%. Despite the wide range of variation in its display field to element mapping, the intention for each element was clear within the context of the database and how the records are maintained. Of the 20 available MODS

elements, 100% of the JISC records contained 11, or 55%, of the elements. These elements were <titleInfo, <name>, <typeOfResource>, <genre>, <originInfo>, <language>, <physicalDescription>, <note>, <subject>, <extension>, and <recordInfo>. Inclusion of the first six of these elements within a record will guarantee that a library patron can find the material through a focused or exploratory search in the database. The least used elements were <part> - 0%, <accessCondition> - 0%, <targetAudience> - 5%, and <abstract> - 10%, which was to be expected because only four of the reviewed records were for bibliographies, books, or moving image films. Copyright information for all materials was included through the elements <extension> or <recordInfo>. Additional elements with significant rates of completion and accuracy were <relatedItem> - 60%, <classification> - 70%, <identifier> - 70%, and <location> - 80%.

Columbia - This digital library's completion rate was 60.25% out of a possible 100%. While Columbia's mapping was the most consistent, where and how elements were implemented was not. The selected records only used <titleInfo>, <physicalDescription>, <relatedItem>, and <location> 100% of the time, which are only 20% of the top-level elements. Others that were included 95% of the time were <typeOfResource>, <originInfo>, <identifier>, and <recordInfo>, which improve the chances of a database user finding the item that they're searching for. The element with the most errors was <genre> due to it being included in records' display fields, but not in the MODS metadata. If Columbia were to loan any of these resources' records to Brown or JISC, they would have arrived without any description of their genre. The least used elements were <targetAudience>, <classification>, <part>, and <extension> with 0%

usage and <tableOfContents> at 5% because image and sculpture materials made up the majority of the reviewed records. Despite lower usage rates for <name>, <genre>, and <language>, this database's records are still discoverable.

Brown - Collected data from this repository show the highest rate of inaccuracies and inconsistencies; the average rate of record completion was 53.50% out of 100%. MODS elements with 100% completion rates were <titleInfo>, <originInfo>, and <subject>, which are only 15% of all top-level elements. At 85% usage, <name>, <typeOfResource>, and <accessCondition> were the second-most used elements.These statistics will negatively impact user success if they try to use search terms that haven't been mapped to their appropriate MODS elements. Brown also contains the most errors out of the three datasets with nine incorrect records. The least used elements were <tableOfContents>, <part>, and <extension> at 0%, but this was also reflected in Columbia's digital library. Areas of most concern are <location> - 10% and <language> - 45% because a record's location in the library impacts data interoperability and language must be mapped to text files, such as theses and dissertations.

Assessment and Conclusion

Of the three repositories, Columbia University's repository labels were the most consistent and sufficiently mapped to their represpective MODS elements. With its varied spectrum of database contributions JISC's mapping was less consistent, but that didn't impact its records' high accuracy rates. Despite creating a strong crosswalk map, Brown's repository featured the most errors. Coupled with inconsistent element

execution, both of these factors negatively impacted the potential interoperability of Brown's descriptive data. Despite these outcomes, there is still evidence of a moderate to high level of interoperability amongst the three repositories, thanks to their higher usage rates of content-based elements (<titleInfo>, <name>, <typeOfResource>, <genre>, <originInfo>, <language>, and <physicalDescription>). Moving forward, it is recommended that Columbia, Brown, and JISC-hosted libraries address the wide variations in their implementation, along with the dearth of data description, that hinder more seamless interoperability. Common practices, such as including record creation dates and content sources, will heighten their potential for increased interoperability. The consistent use of standardized identifiers like ISBN, URI, or LCCN will help to facilitate cross-referencing between repositories, as well.

While MODS offers a comprehensive set of elements for describing resources, execution of top-level elements such as <classification>, <language>, and <extension> aren't standardized, which lead JISC to rely the most on <extension> while the other two used <relatedItem> or didn't include <location> or <accessCondition> in their records at all. Such decisions are determined by the nature of the materials being described; some repositories might not find these elements relevant for particular resources in their collections. For instance, <Classification> and <targetAudience> are more applicable to library cataloging systems, while <extension> is underused as it's meant to occasionally provide information that is not covered by MODS, such as when hundreds of catalogs are transferred into the same database. The flexibility of MODS allows repositories to tailor metadata to their specific needs, resulting in varied usage patterns for commonly underutilized elements. Overall, the data suggests that the

selected records did largely adhere to MODS standards and with the inclusion of supplemental identifiers and standardized language terms, they contributed positively to the quality of the descriptive metadata elements.

References

Biondi, M. (2011, March). Finding Aid for Gustavus Elmer Emanuel Lindquist Papers, 1897–1955. New York; Columbia University Libraries.

"Coachella Valley scenery" (2005). *Educating Change*. Brown Digital Repository. Brown University Library. https://repository.library.brown.edu/studio/item/bdr:105466/

Columbia University Libraries. (n.d.). *About*. Columbia Digital Library Collections. https://dlc.library.columbia.edu/about

Frontier Economics. (2023, June 22). The economic benefits of JISC. London.

JISC. (n.d.). *About Library Hub Discover*. JISC Library Hub Discover. https://discover.libraryhub.jisc.ac.uk/about/

The Library of Congress. (2022, November 2). *Mods elements and attributes*. MODS User Guidelines, Version 3 (Metadata Object Description Schema, Standards, Library of Congress). https://www.loc.gov/standards/mods/userguide/generalapp.html

Lindquist, G. E. E. (Gustavus Elmer Emanuel). (between 1912 and 1953). August Alexander and Family, Umatilla Church Members, Oregon. *Columbia Digital Library Collections [Columbia University Libraries]*. [Negative]. Retrieved from https://doi.org/10.7916/18vf-yz89

McCallum, S. (2020). MARC21 to MODS 3.8 Metadata Mapping. Washington, D.C.; The Library of Congress.

Riley, J. (2017). Understanding Metadata. Baltimore; National Information Standards Organization (NISO).

Wolf, E. (1988). *Legacies of genius: A celebration of philadelphia libraries: A selection of books, manuscripts, and works of art*. Philadelphia area consortium of special collections libraries. November 2023, https://discover.libraryhub.jisc.ac.uk/search?keyword=philadelphia&rn=2&for=edi

Appendices

Appendix A - Partial MARC 21 to MODS 3.8 Mapping

1	**MARC to MODS v.1.0 (20231012)**	
2		
3	**titleInfo**	**<titleInfo>**
4	245 $a $f $g $k $s	<title> with no <titleInfo> type attribute AND
5	245 $b	<subTitle>
6	245 $n (and $f $g $k following $n)	<partNumber>
7	245 $p (and $f $g $k following $p)	<partName>
8	245 ind2 is not 0	<nonSort> around characters excluded from sort as indicated in indicator value.
9	[If $f $g $k follow $b they go with <subTitle>. If they follow $a they go with <title>.]	
10		
11	210 $a	<title> with <titleInfo> type="abbreviated" AND
12	210 $b	<subTitle>
13	210 $2	add attribute authority="content of subfield"
14		
15	242 $a	<title> with <titleInfo> type="translated" AND
16	242 $b	<subTitle>
17	242 $n	<partNumber>
18	242 $p	<partName>
19	242 $y	add attribute lang="content of subfield"
20		
21	246 $a with ind2=1	<title> with <titleInfo> type="translated" AND
22	246 $b	<subTitle>
23	246 $i	displayLabel="text of $i"
24	246 $n	<partNumber>
25	246 $p	<partName>
26		
27	246 $a $f	<title> with <titleInfo> type="alternative" AND
28	246 $b	<subTitle>
29	246 $i	displayLabel="text of $i"
30	246 $n	<partNumber>
31	246 $p	<partName>
32		
33	130, 240 $a $d $f $k $l $m $o $r $s, 730 $a $d $f	<title> with <titleInfo> type="uniform" AND
34	130, 240, 730 $n (and other subfields following as	<partNumber>
35	130, 240, 730 $p (and other subfields following as	<partName>
36	130, 240, 730 $0	add xlink="contents of $0" (as URI)
37	240	add nameTitleGroup

Appendix B - Top-Level MODS Elements and Attributes

Top-Level Elements in MODS

All top-level elements are described on individual pages, along with their subelements and attributes (listed in order, read down each column):

titleInfo	language	note	location
name	physicalDescription	subject	accessCondition
typeOfResource	abstract	classification	part
genre	tableOfContents	relatedItem	extension
originInfo	targetAudience	identifier	recordInfo

MODS Schema - Common Attributes

Element	***Common attributes***
Definition	Certain attributes defined in the MODS schema are used by multiple (but not necessarily all) elements. This page provides links (anchors) used by the MODS Guidelines when describing elements that use these attributes.
Attributes	Language-related: lang; xml:lang; script; transliteration Date: encoding; point; keyDate; qualifier; calendar Linking: ID; IDREF; xlink:href; altRepGroup; nameTitleGroup Authority: authority; authorityURI; valueURI Miscellaneous: displayLabel; altFormat and contentType; usage; shareable; supplied; typeURI

Appendix C - Columbia Mapping - Display Label to MODS Element

Display Label	MODS Element	Display Label	MODS Element
Name	name	Persistent URL	identifier
Title	titleInfo	Copyright Status	accessCondition
Collection Name	relatedItem	Archival Context	part
Shelf Location	location	Digital Project	relatedItem
Subjects	subject	Accession Number	identifier
Format	physicalDescription	Publication Information	originInfo
Genre	physicalDescription; genre	Catalog Record	identifier
Origin Information	originInfo	Culture	genre
Date	originInfo	Acknowledgments	note
Note	note	Library Location	location
Language	language	Also in	relatedItem

Appendix D - JISC Mapping - Display Label to MODS Element

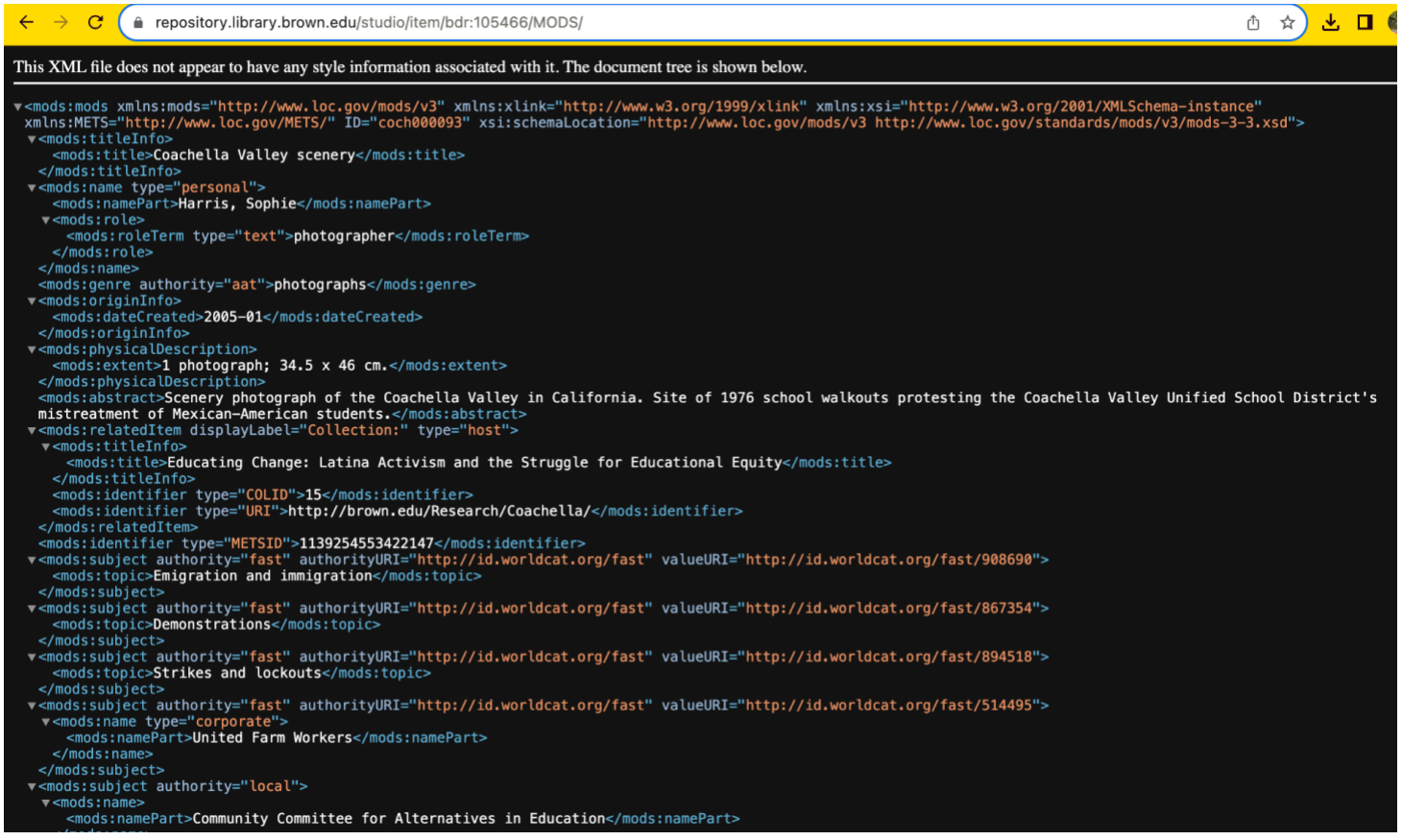
Display Label	MODS Element	Display Label	MODS Element
Name	name	Notes	note; originInfo; tableOfContents
Author	name; note	location	location; extension; relatedItem
LCC	classification	Language	language; note
Other names	name	Contents	tableOfContents; note
Series	relatedItem	Audience	targetAudience
Title Information	titleInfo; relatedItem	Summary	abstract
Other titles	titleInfo	DOI	identifier
Type of Resource	typeOfResource; subject	Related Item	relatedItem
Subjects	subject	Related Internet Resources	relatedItem
Internet Resources	location	Record Information	recordInfo
Edition	originInfo	Access Condition	accessCondition

ISBN	identifier	Origin Information	originInfo; subject
Published	originInfo	In	N/A
Physical Description	physicalDescription; note	Genre	genre; typeOfResource; subject

Appendix E - Brown Mapping - Display Label to MODS Element

Display Label	MODS Element	Display Label	MODS Element
Name	name	Note	note
Contributor	name	Abstract	Abstract; would be marked as <note> in the two other repositories
Role	name	Language	language
Title Information/Title	titleInfo	Related Item	relatedItem
Type of Resource	typeOfResource	Record Information	recordInfo
Physical description	physicalDescription	Rights statement	accessCondition
Subjects	subject	Restrictions on Use	accessConditions
Extent	physicalDescription	Collection	N/A
Genre	genre	DOI	identifier
Origin Information	originInfo	Year	originInfo
Library Catalog	N/A		

Appendix F - Brown Repository MODS Record



```
▼<mods:name>
    <mods:namePart>Community Committee for Alternatives in Education</mods:namePart>
  </mods:name>
 </mods:subject>
▼<mods:subject authority="local">
 ▼<mods:name type="personal">
    <mods:namePart>Medina, Ramona</mods:namePart>
  </mods:name>
 </mods:subject>
▼<mods:subject authority="local">
 ▼<mods:name type="personal">
    <mods:namePart>Gómez-Potter, Socorro</mods:namePart>
  </mods:name>
 </mods:subject>
▼<mods:subject authority="local">
 ▼<mods:name type="personal">
    <mods:namePart>Esquivel, Yolanda</mods:namePart>
  </mods:name>
 </mods:subject>
 <mods:accessCondition type="rights statement" xlink:href="http://rightsstatements.org/vocab/InC/1.0/">In Copyright</mods:accessCondition>
 <mods:accessCondition type="restriction on access">Collection is open for research.</mods:accessCondition>
</mods:mods>
```

Appendix G - Excerpt from JISC Database MODS Record, focus on the use of the <extension> element

```
<extension>
        <modsCollection>
                <mods version="3.7">
                        <recordInfo>
                                <recordIdentifier source="UkMaC">7877763</recordIdentifier>
                                <recordIdentifier source="WlAbNL">9927176602419</recordIdentifier>
                                <recordCreationDate encoding="iso8601">20231215</recordCreationDate>
                        </recordInfo>
                        <typeOfResource>text</typeOfResource>
                        <originInfo>
                                <issuance>single unit</issuance>
                        </originInfo>
                        <recordInfo>
                                <descriptionStandard>aacr</descriptionStandard>
                        </recordInfo>
                        <originInfo>
                                <dateIssued encoding="marc">1988</dateIssued>
                                <place>
                                        <placeTerm authority="marccountry" type="code">xxu</placeTerm>
                                </place>
                        </originInfo>
                        <titleInfo>
                                <title>Legacies of genius</title>
                                <subTitle>a celebration of Philadelphia libraries : a selection of books, manuscripts, and works of art</subTitle>
                        </titleInfo>
                        <note type="statement of responsibility">edited by Edwin Wolf 2nd.</note>
                        <originInfo eventType="publisher">
                                <place>
                                        <placeTerm type="text">Philadelphia, Pa.</placeTerm>
                                </place>
                                <publisher>Philadelphia Area Consortium of Special Collections Libraries</publisher>
                                <dateIssued>1988</dateIssued>
                        </originInfo>
                        <physicalDescription>
                                <extent>266p : ill (some col.), facsims ; 28cm.</extent>
                        </physicalDescription>
                        <note type="bibliography">Includes index.</note>
                        <subject authority="lcsh">
                                <topic>Rare books</topic>
                                <geographic>Pennsylvania</geographic>
                                <geographic>Philadelphia</geographic>
                                <genre>Bibliography</genre>
                                <topic>Exhibitions.</topic>
                        </subject>
                        <subject authority="lcsh">
                                <topic>Manuscripts</topic>
                                <geographic>Pennsylvania</geographic>
                                <geographic>Philadelphia</geographic>
                                <topic>Exhibitions.</topic>
                        </subject>
                        <subject authority="lcsh">
                                <topic>Libraries</topic>
                                <geographic>Pennsylvania</geographic>
                                <geographic>Philadelphia</geographic>
                                <topic>Exhibitions.</topic>
                        </subject>
                        <subject authority="lcsh">
                                <topic>Art</topic>
                                <geographic>Pennsylvania</geographic>
                                <geographic>Philadelphia</geographic>
                                <topic>Exhibitions.</topic>
                        </subject>
                        <subject authority="lcsh">
                                <topic>Books</topic>
                                <topic>History</topic>
```

```
        </subject>
        <subject authority="lcsh">
                <topic>Books</topic>
                <topic>History</topic>
                <topic>Exhibitions</topic>
                <geographic>Pennsylvania</geographic>
                <geographic>Philadelphia.</geographic>
        </subject>
        <name type="personal">
                <namePart>Wolf, Edwin</namePart>
                <namePart type="date">1911–</namePart>
        </name>
        <name type="corporate">
                <namePart>Philadelphia Area Consortium of Special Collections Libraries.</namePart>
        </name>
        <physicalDescription>
                <form authority="marcform">print</form>
        </physicalDescription>
        <genre>Illustrated</genre>
        <language>
                <languageTerm authority="iso639-2b" type="code">eng</languageTerm>
                <languageTerm type="text">English</languageTerm>
        </language>
        <location>
                <physicalLocation>National Library of Wales / Llyfrgell Genedlaethol Cymru</physicalLocation>
                <physicalLocation authority="UkMaC">nlw</physicalLocation>
                <holdingSimple>
                        <copyInformation>
                                <subLocation>Contact the National Library of Wales / Llyfrgell Genedlaethol Cymru</subLocation>
                                <shelfLocator>92MC15942</shelfLocator>
                        </copyInformation>
                </holdingSimple>
        </location>
</mods>
```

Appendix H - Columbia Digital Library Collections MODS Metadata Record

Name
Lindquist, G. E. E. (Gustavus Elmer Emanuel), 1886-1967 (Former owner)

Title
August Alexander and Family, Umatilla Church Members, Oregon

Collection Name
Gustavus Elmer Emanuel Lindquist Papers

Archival Context
Series 8: Special Formats, 1909-1953. Subseries 8A: Photographs, 1909–1953. Box no. 59, Folder no. 752, Item no. 1383, Folder title: Oregon Indians; Group title: Umitillas

Subjects
Indian families; Umatilla Indians; Families; Oregon

Format
negatives

Genre
negatives

Date
between 1912 and 1953

Physical Description
3 5/8" x 5 3/4"

```
<?xml version="1.0"?>
<mods:mods xmlns:mods="http://www.loc.gov/mods/v3" xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="3.8" xsi:schemaLocation="http://www.loc.gov/
mods/v3 http://www.loc.gov/standards/mods/v3/mods-3-6.xsd">
  <mods:titleInfo>
    <mods:title>August Alexander and Family, Umatilla Church Members, Oregon</mods:title>
  </mods:titleInfo>
  <mods:identifier type="local">burke_lindq_059_1383</mods:identifier>
  <mods:relatedItem displayLabel="Project" type="host">
    <mods:identifier type="hyacinth-stringkey">burke_lindq</mods:identifier>
    <mods:titleInfo>
      <mods:title>Gustavus Elmer Emanuel Lindquist Papers</mods:title>
    </mods:titleInfo>
  </mods:relatedItem>
  <mods:relatedItem displayLabel="Collection" type="host">
    <mods:titleInfo valueURI="http://id.library.columbia.edu/term/9ef60f2b-1b2e-4e53-b403-bed1e4f4651a">
      <mods:title>Gustavus Elmer Emanuel Lindquist Papers</mods:title>
    </mods:titleInfo>
    <mods:identifier type="CLIO">4492645</mods:identifier>
    <mods:part>
      <mods:detail>
        <mods:title level="1" type="series">Series 8: Special Formats, 1909-1953</mods:title>
      </mods:detail>
      <mods:detail>
        <mods:title level="2" type="subseries">Subseries 8A: Photographs, 1909&#x2013;1953</mods:title>
      </mods:detail>
    </mods:part>
  </mods:relatedItem>
  <mods:name authority="naf" type="personal" valueURI="http://id.loc.gov/authorities/names/no96003215">
    <mods:namePart>Lindquist, G. E. E. (Gustavus Elmer Emanuel), 1886-1967</mods:namePart>
    <mods:role>
      <mods:roleTerm authority="marcrelator" type="text" valueURI="http://id.loc.gov/vocabulary/relators/fmo">Former owner</mods:roleTerm>
    </mods:role>
  </mods:name>
  <mods:location>
    <mods:url access="object in context" usage="primary display">http://lindquist.cul.columbia.edu/catalog/burke_lindq_059_1383</mods:url>
  </mods:location>
  <mods:location>
    <mods:physicalLocation authority="marcorg" valueURI="http://id.library.columbia.edu/term/4f175cc6-1394-49b9-a411-2fe143265d43">NyNyCBL</mods:physicalLocation>
    <mods:holdingSimple>
      <mods:copyInformation>
        <mods:shelfLocator>Box no. 59, Folder no. 752, Item no. 1383, Folder title: Oregon Indians; Group title: Umitillas</mods:shelfLocator>
      </mods:copyInformation>
    </mods:holdingSimple>
  </mods:location>
  <mods:subject authority="lcsh" valueURI="http://id.loc.gov/authorities/subjects/sh2009010987">
    <mods:topic>Indian families</mods:topic>
  </mods:subject>
  <mods:subject authority="lcsh" valueURI="http://id.loc.gov/authorities/subjects/sh85139515">
    <mods:topic>Umatilla Indians</mods:topic>
  </mods:subject>
  <mods:subject authority="lcsh" valueURI="http://id.loc.gov/authorities/subjects/sh85047009">
    <mods:topic>Families</mods:topic>
  </mods:subject>
  <mods:subject authority="naf" valueURI="http://id.loc.gov/authorities/names/n79021953-781">
    <mods:geographic>Oregon</mods:geographic>
  </mods:subject>
  <mods:subject authority="naf" valueURI="http://id.loc.gov/authorities/names/n79021953-781">
    <mods:geographic>Oregon</mods:geographic>
  </mods:subject>
  <mods:note type="date note">Date based on the earliest and latest dates of the Lindquist collection.</mods:note>
  <mods:note>Positive image of a scanned negative from The Burke Archives.</mods:note>
  <mods:note>Recto annotation: 25-8-Aug [ALEX?]</mods:note>
  <mods:typeOfResource>still image</mods:typeOfResource>
  <mods:originInfo>
    <mods:dateCreated encoding="w3cdtf" keyDate="yes" point="start" qualifier="inferred">1912</mods:dateCreated>
```

```
  <mods:note type="date note">Date based on the earliest and latest dates of the Lindquist collection.</mods:note>
  <mods:note>Positive image of a scanned negative from The Burke Archives.</mods:note>
  <mods:note>Recto annotation: 25-8-Aug [ALEX?]</mods:note>
  <mods:typeOfResource>still image</mods:typeOfResource>
  <mods:originInfo>
    <mods:dateCreated encoding="w3cdtf" keyDate="yes" point="start" qualifier="inferred">1912</mods:dateCreated>
    <mods:dateCreated encoding="w3cdtf" point="end">1953</mods:dateCreated>
    <mods:dateCreated>between 1912 and 1953</mods:dateCreated>
  </mods:originInfo>
  <mods:physicalDescription>
    <mods:form authority="gmgpc" valueURI="http://id.loc.gov/vocabulary/graphicMaterials/tgm007029">negatives</mods:form>
    <mods:extent>3 5/8" x 5 3/4"</mods:extent>
    <mods:digitalOrigin>reformatted digital</mods:digitalOrigin>
  </mods:physicalDescription>
  <mods:recordInfo>
    <mods:languageOfCataloging>
      <mods:languageTerm authority="iso639-2b" valueURI="http://id.loc.gov/vocabulary/iso639-2/eng">eng</mods:languageTerm>
    </mods:languageOfCataloging>
    <mods:recordCreationDate encoding="w3cdtf">2023-04-25T20:41:09Z</mods:recordCreationDate>
    <mods:recordChangeDate encoding="w3cdtf">2023-05-05T20:02:13Z</mods:recordChangeDate>
  </mods:recordInfo>
  <mods:accessCondition type="use and reproduction" xlink:href="https://rightsstatements.org/vocab/UND/1.0/">Copyright Undetermined</mods:accessCondition>
  <mods:accessCondition type="local rights statement" xlink:href="https://doi.org/10.7916/D8TJ046B">Copyright &amp;amp; Permissions for Online Exhibitions &amp;amp; Digital Collections</mods:accessCondition>
  <mods:identifier type="DOI">10.7916/18vf-vz89</mods:identifier>
</mods:mods>
```

Appendix I - Finding Aid Excerpts from the Gustavus Elmer Emanuel Lindquist Papers
The repository item featured in Appendix H is located in Series 3, Box 9, Folder 5.

- **Series 3: Native American Tribes and Reservations, 1900-1954 (8 boxes, 4.00 lin. ft)**
  This series contains information on specific tribes and reservations that Lindquist worked with and studied, including the Navajo, Hopi, and Apache. Lindquist also kept separate files on the drug peyote; this section has been left in series 3 as Lindquist intended

Michala Biondi, 2011 and Brigette C. Kamsler 10/1/15

---

because of its intrinsic value to the culture of many tribes. It is the only subject file placed specifically in the series. The large amount of material is organized geographically by state, and includes other countries such as Canada, Mexico and South America.

3	9	1	Oklahoma -- Church and Missionary Work, 1919, 1931, 1948-1949 [553]
3	9	2	Oklahoma -- General, 1931-1935 [554]
3	9	3	Oregon -- Warm Springs Indian Agency, 1931 [555]
3	9	4	Oregon -- Paiute Indians, 1933 [556]
3	9	5	Oregon -- Umatilla Indians and Umatilla Indian Agency, 1931 [557]
3	9	6	Oregon -- Grand Ronde-Siletz Indian Agency, 1931, 1941 [558]
3	9	7-8	Oregon -- Klamath Indians, Klamath Indian Agency, 1930-1931 [559-560]
3	9	9	South Carolina -- Catawbas of South Carolina, 1920 [561]
3	9	10-12	South Dakota -- Indian Commission Reports, 1949-1953 [562-564]
3	9	13	South Dakota -- Pine Ridge Indian Agency Reports, 1927, 1932 [565]
3	9	14	South Dakota -- Cheyenne River Indian Reservation 1923, 1931 [566]
3	9	15	South Dakota -- Lower Brule and Crow Creek Indian Reservations [567]