



**Texas Digital Library
Descriptive Metadata Guidelines for
Electronic Theses and Dissertations**

Version 1.0

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**Prepared by the
TDL Metadata Working Group:**
Amy Rushing (The University of Texas at Austin) - Chair
Jay Koenig (Texas A&M University)
Anne Mitchell (University of Houston)
William Moen (University of North Texas)
Tim Strawn (The University of Texas at Austin)
Jason Thomale (Texas Tech University)

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Introduction

Background

Founded in 2005, the Texas Digital Library (TDL) is a multi-university consortium dedicated to providing the digital infrastructure to support a fully online scholarly community for institutions of higher education in Texas. Through the establishment of shared policies and standards, forums for professional interaction, expertise in digital collections and preservation, and robust technical services, the TDL aims to increase the availability of the enormous intellectual capital produced throughout Texas universities.

With the backing of a grant from the Institute for Museum and Library Studies (IMLS), the Texas Digital Library's largest current project is the creation of a digital repository housing electronic theses and dissertations (ETDs) from colleges and universities across Texas. At present, the ETD repository includes submissions from four TDL member institutions, while future plans include soliciting ETDs from universities all over the state of Texas. The implementation of this project builds upon other TDL initiatives, including the Shibboleth Federation and the Preservation Network.

One of the founding aims of the TDL is to share the resources of multiple universities across a common structure. Benefits realized through this activity include increased visibility and enhanced discoverability of resources. In order for these benefits to be achieved, metadata from each repository must be interoperable with existing metadata in the aggregation. Although metadata may meet quality standards in the local context, the records must also have certain characteristics in order to be relevant in the aggregated environment.

Shortly after the TDL was founded, the Metadata Working Group of the Texas Digital Library began working on a descriptive application profile for ETDs in the Metadata Object Description Schema (MODS). The goal was to develop an interoperable standard that provided semantically rich bibliographic description. Based on the Networked Digital Library of Theses and Dissertations' (NDLTD) *ETD-MS: An Interoperability Metadata Standard for Electronic Theses and Dissertations*, Version 1.0 of the MODS Application Profile for Electronic Theses and Dissertations¹ (TDL ETD MODS) was published December of 2005.

The TDL ETD MODS schema initially created a baseline for ETD metadata collection and dissemination. It would allow federated searching across collections within TDL and facilitate a greater degree of consistency in the presentation of the records. It would guarantee that certain fields—like the degree discipline and degree date—are present. As beneficial as this first step was, there were still areas of divergence among the records collected from the schools, usually due to ambiguities present within the interpretation of the schema. This created usability and interoperability challenges, and made basic repository tasks, like browsing and searching the collection, more difficult than necessary².

In order to support TDL's goal of a single, unified collection of ETDs, a single ingestion point was needed to collect the metadata in a consistent, authoritative manner. In spring of 2006, a working group was formed with members from six different universities across the state. Its charge was to identify the issues and policies involved with ETD workflows in the member institutions, and make recommendations to the team charged with the development of an ingestion application³.

¹ http://www.tdl.org/documents/ETD_MODS_profile.pdf

² Adam Mikael; Tim Brace; John Leggett; Mark McFarland; Scott Phillips. *Developing a Common Submission System for ETDs in the Texas Digital Library*. <http://handle.tamu.edu/1969.1/5679>

³ Ibid.

Thesis and Dissertation Submittal System

While the creation of ETDs is increasingly common at colleges and universities worldwide, the automation of their submission, review, and deposition in a repository is mostly uncharted territory. The TDL's Thesis and Dissertation Submittal System (TDSS) addresses these issues, providing a web-based student submission interface and administrative management interface, as well as automated deposit in the TDL ETD repository⁴. The submission interface is based on the TDL ETD MODS schema, ensuring a consistent and thorough method of capturing metadata. The TDSS is an open source project, using Manakin and DSpace, and will be available for adoption by TDL member institutions. For additional information about the genesis and goals of the TDL Thesis and Dissertation Submittal System, please see the paper, *Developing a Common Submission System for ETDs in the Texas Digital Library* which is referred to in the footnote on the previous page.

Explanation of Guidelines

The Metadata Working Group has developed this set of implementation guidelines of the TDL ETD MODS application profile, specifically for use in describing ETDs that are to be shared within the Texas Digital Library and beyond.

We foresee two ways for contributors to load ETD metadata records into TDL: by the Thesis and Dissertation Submittal System and by submitting to TDL metadata records for batch ingest. The TDL ETD repository uses the DSpace platform, which is pre-configured to accept qualified Dublin Core and flat, Dublin Core-like schemas as the main metadata schema for ingestion. Because DSpace requires a flat, Dublin Core-like schema, TDL partners should be aware that at present, MODS cannot be directly ingested into the TDL ETD repository by any means other than the Thesis and Dissertation Submittal System. In response to the DSpace Dublin Core requirement, the Metadata Working Group produced a set of qualified Dublin Core elements for ETDs that could be mapped from the TDL ETD MODS application profile. This qualified DC is called TDL ETD DC. The goal of the mapping is to attempt semantic equivalence between the MODS elements and the TDL ETD DC elements to reduce potential loss of data when transforming from the richer MODS schema to the simpler Dublin Core schema.

Recommended mappings from TDL ETD MODS to TDL ETD DC are provided in this document. These mappings, however, are provided only to assist participants in meeting DSpace requirements, and are not a recommendation to provide qualified Dublin Core as the primary descriptive metadata schema. If transformations are performed at the local institution, always map from the richer scheme (TDL ETD MODS) to the simpler scheme (TDL ETD DC). Transformations in the opposite direction will lose valuable properties of the richer scheme.

This document is intended to support the internal needs of TDL and also the needs of the contributing institutions. Internally, TDL staff will use the mapping portion of this document to transform contributors' ETD MODS records to ETD DC and to export to ETD MODS from existing ETD DC records. The contributing institutions can use this document to guide and shape local metadata practices for describing ETDs; the mapping portion can be used to guide transformations done locally between MODS and DC records that describe ETDs.

ETD metadata may be added to the TDL ETD repository not only through the TDSS but also through metadata harvesting or batch imports of records from other sources. Thus while institutions using the TDSS exclusively to generate and manage their ETDs will not have a need to transform metadata for the TDL, other schools may; the TDL will accept data both in the TDL ETD MODS and in the TDL ETD DC formats. Please note that ETDs submitted through the TDL Thesis and Dissertation Submittal System will have all the required ETD MODS metadata elements.

⁴ Ibid.

The authors of the implementation guidelines are aware that the requirements and recommendations set forth here are not currently met by most current and potential TDL members. However, we developed these guidelines for creating rich, shareable metadata that is consistent, and, thus, useful to aggregators and end users. We hope that these guidelines will help TDL members shape current and future local metadata practices for electronic theses and dissertations and to aid in the goal of successfully sharing meaningful metadata with TDL and other aggregators such as the Networked Digital Library of Theses and Dissertations (NDLTD). TDL has plans to share metadata with the NDLTD which uses the ETD-MS⁵ metadata schema. TDL ETD DC follows very closely the ETD-MS application profile. We've included a mapping to ETD-MS in this document. It is intended primarily for TDL staff purposes to ensure interoperability with the NDLTD.

This document is expected to be modified and refined over time to accommodate new requirements for encoding descriptive metadata information for electronic theses and dissertations.

The TDL ETD MODS Schema

TDL ETD MODS defines 16 top level elements. Included in this document is an overview of each TDL ETD MODS top level element, their subelements, and attributes, and their use for describing electronic theses and dissertations. The document is structured according to the following list of top-level elements:

Title Information (mandatory)
 Name of Author (mandatory)
 Name of Thesis Advisor (mandatory)
 Name of Committee Member (optional)
 Name of Degree Grantor (mandatory)
 Type of Resource (mandatory)
 Genre (mandatory)
 Origin Information (mandatory)
 Language (mandatory)
 Physical Description (mandatory)
 Abstract (mandatory)
 Subject (mandatory)
 Identifier (mandatory)
 Location (mandatory)
 Degree Information (mandatory)
 Record Information (mandatory)

Changes to MODS Application Profile

When the TDL Metadata Working Group agreed to expand the *MODS Application Profile for ETDs Version 1.0* into a more comprehensive guidelines document with recommended data values and element definitions, some slight changes and corrections were made to the original MODS profile. They include:

- **Genre** -- the MARC relator term "theses" has been corrected to "thesis".
- **Degree Information** – We have removed reference to the "TDL Vocabulary". At this time, there is no TDL Vocabulary.

Mandatory and Optional Metadata

Mandatory information about an item is information that must be provided in order for the metadata record and its associated object to be properly validated and added to the TDL repository. Mandatory data elements must not be left blank, but must contain a value, even if the value is "not available". For

⁵ <http://www.ndltd.org/standards/metadata/current.html>

example, every item must have an abstract, even if the abstract is "not available." Unless otherwise specified, each element must have a semantically meaningful value (i.e. a value other than "not available"). For those elements for which "not available" is an accepted value, we have added specific notations.

A Note on Metadata Transformations

When converting metadata from TDL ETD MODS to one of the less detailed schemas, in some cases multiple MODS elements will be condensed into single Dublin Core or ETD-MS elements. In these instances, format the resulting data value according to the examples given. A MODS <titleinfo> element with a <title> and a <subTitle> specified becomes a DC title element formatted with a colon between the title and subtitle (e.g. title: subtitle). Personal names that, in MODS, are broken into given and family names should be written in inverted form when translated to a single DC element.

Instructions for Formatting and Encoding

The following conventions are used to express guidelines for each metadata element:

Name of Element: The name of the top-level MODS element. M=Mandatory O=Optional

Definition of Element: Definition of element from MODS User Guidelines⁶ and ETD-MS

Mandatory and Optional Practice: Guidelines for encoding, including whether elements or subelements are mandatory or optional.

Recommended data values: May include references to appropriate content standard, authority file, thesaurus, encoding standard, etc. to guide data value entry.

Example of Use: Provides examples of preferred data values within elements.

Mapping to TDL ETD DC: Provides encoding analog between elements in MODS ETD and TDL ETD DC. A quick reference mapping table appears in Appendix A.

Mapping to ETD-MS: Provides encoding analog between elements in MODS ETD and ETD-MS. A quick reference mapping table appears in Appendix A.

Title Information (M)

Definition: A name given to the resource.

Mandatory practice: Encode the title information in a <mods:titleInfo> wrapper element. Encode the title proper in a <mods:title> subelement. Encode the subtitle in a <mods:subTitle> subelement.

Optional practice: Other valid subelements or attributes within the <mods:titleInfo> element may be used.

Recommended data values: The title of the work as it appears on the title page proper or equivalent.

Example of Use:

```
<mods:titleInfo>
  <mods:title>Critical processes and performance measures for patient safety systems in healthcare
  institutions </mods:title>
  <mods:subTitle>a Delphi study</mods:subTitle>
</mods:titleInfo>
```

Mapping to TDL ETD DC

```
<dc.title>Critical processes and performance measures for patient safety systems in healthcare
institutions: a Delphi Study</dc.title>
```

Mapping to ETD-MS

```
<dc.title>Critical processes and performance measures for patient safety systems in healthcare
institutions: a Delphi Study</dc.title>
```

⁶ <http://www.loc.gov/standards/mods/v3/mods-userguide.html>

Name of Author (M)

Definition: An entity primarily responsible for making the content of the resource; the author of the work.

Mandatory practice: Encode information about the name of the author in the <mods:name> wrapper element with the type attribute set to "personal." Encode the MARC relator term "Author" in the <mods:roleTerm> subelement under the <mods:role> subelement. Encode the various parts of the name in the <mods:namePart> subelement. Include the type attribute in each <mods:namePart> subelement. The "given" and "family" name types are mandatory.

Optional practice: Encode the birthdate in a <mods:namePart> subelement with type set to "date". Other valid subelements or attributes within the <mods:name> element may be used.

Recommended data value: Expressed in the authorized form of the author's name if possible.

Example of Use:

```
<mods:name type="personal">
  <mods:namePart type="given">Ralitsa B.</mods:namePart>
  <mods:namePart type="family">Akins</mods:namePart>
  <mods:namePart type="date">1967-</mods:namePart>
  <mods:role>
    <mods:roleTerm authority="marcrelator" type="text">Author</mods:roleTerm>
  </mods:role>
</mods:name>
```

Mapping to TDL ETD DC

```
<dc.creator>Akins, Ralitsa B., 1967-</dc.creator>
```

Mapping to ETD-MS

```
<dc.creator>Akins, Ralitsa B., 1967-</dc.creator>
```

Name of Thesis Advisor (M)

Definition: Name of thesis/dissertation advisor or committee chair as it appears on title page or equivalent.

Mandatory practice: Encode information about the thesis advisor in the <mods:name> wrapper element with the type attribute set to "personal." Encode the MARC relator term⁷ "Thesis advisor" in the <mods:roleTerm> subelement under the <mods:role> subelement. Encode the various parts of the name in the <mods:namePart> subelement. Include the type attribute in each <mods:namePart> subelement. The "given" and "family" name types are mandatory. The element <mods:name> is repeatable for thesis advisors.

⁷ <http://www.loc.gov/marc/relators/relaterm.html>

Optional practice: Encode the birthdate in a <mods:namePart> subelement with type set to "date". Other valid subelements or attributes within the <mods:name> element may be used.

Recommended Data Value: Expressed in the authorized form of the advisor's name if possible.

Example of Use:

```
<mods:name type="personal">
  <mods:namePart type="given">Bryan R.</mods:namePart>
  <mods:namePart type="family">Cole</mods:namePart>
  <mods:role>
  <mods:roleTerm authority="marcrelator" type="text">Thesis advisor</mods:roleTerm>
  </mods:role>
</mods:name>
```

Mapping to TDL ETD DC

```
<dc.contributor.advisor>Cole, Bryan R.</dc.contributor.advisor>
```

Mapping to ETD-MS

```
<dc.contributor>Cole, Bryan R.</dc.contributor>
<dc.contributor.role>Thesis advisor</dc.contributor.role>
```

Name of Committee Member(s) (O)

Definition: Name of committee member(s) found on title page or equivalent.

Mandatory practice: N/A

Optional practice: Encode information about committee members in the <mods:name> wrapper element with the type attribute set to "personal." Encode the term "Committee member" in the <mods:roleTerm> subelement under the <mods:role> subelement. Encode the various parts of the name in the <mods:namePart> subelement. Include the type attribute in each <mods:namePart> subelement. The "given" and "family" name types are mandatory. The element <mods:name> is repeatable for committee members. Encode the birthdate in a <mods:namePart> subelement with type set to "date". Other valid subelements or attributes within the <mods:name> element may be used.

Recommended Data Value: Expressed in the authorized form of the committee member's name if possible.

Example of Use:

```
<mods:name type="personal">
  <mods:namePart type="given">Eddie J.</mods:namePart>
  <mods:namePart type="family">Davis</mods:namePart>
  <mods:role>
  <mods:roleTerm type="text">Committee member</mods:roleTerm>
  </mods:role>
</mods:name>
```

```
<mods:name type="personal">
```

```

<mods:namePart type="given">Yvonna S.</mods:namePart>
<mods:namePart type="family">Lincoln</mods:namePart>
<mods:role>
<mods:roleTerm type="text">Committee member</mods:roleTerm>
</mods:role>
</mods:name>

```

```

<mods:name type="personal">
<mods:namePart type="given">Elvin E.</mods:namePart>
<mods:namePart type="family">Smith</mods:namePart>
<mods:role>
<mods:roleTerm type="text">Committee member</mods:roleTerm>
</mods:role>
</mods:name>

```

Mapping to TDL ETD DC

```

<dc.contributor.committeeMember>Davis, Eddie J.</dc.contributor.committeeMember>
<dc.contributor.committeeMember>Lincoln, Yvonna S.</dc.contributor.committeeMember>
<dc.contributor.committeeMember>Smith, Elvin E.</dc.contributor.committeeMember>

```

Mapping to ETD-MS

N/A

Note: Because of the lack of semantic precision for this element, we've elected not to export/map this element to ETD-MS.

Name of Degree Grantor (M)

Definition: Name of institution and academic department granting the degree associated with the work.

Mandatory practice: Encode information about the degree grantor in the <mods:name> wrapper element with the type attribute set to "corporate." Encode the name of the degree granting institution in a <mods:namePart> subelement. The <namePart> subelement naming the granting institution must always occur first. The degree department must be encoded in a second, repeated <mods:namePart> subelement .

Optional practice: N/A

Recommended Data Value: For granting institution: use the form of the name authorized by the Library of Congress Name Authority File. Use MARC Relator Term "Degree grantor" in the <mods:roleTerm> subelement.

Example of Use:

```

<mods:name type="corporate" authority="lcnaf">
<mods:namePart>Texas A & M University</mods:namePart>
<mods:namePart>Educational Administration and Human Resource
Development</mods:namePart>
<mods:role>
<mods:roleTerm authority="marcrelator" type="text">Degree grantor</mods:roleTerm>

```

</mods:role>
</mods:name>

Mapping to TDL ETD DC

<thesis.degree.grantor>Texas A & M University</thesis.degree.grantor>
<thesis.degree.department>Educational Administration and Human Resource Development</thesis.degree.department>

Mapping to ETD-MS

<thesis.degree.grantor>Texas A & M University</thesis.degree.grantor>
<thesis.degree.grantor>Educational Administration and Human Resource Development</thesis.degree.grantor>

Type of Resource (M)

Definition: Characteristic and general type of content of the resource.

Mandatory practice: Encode the type of resource in the <mods:typeOfResource> element. The element <mods:typeOfResource> is repeatable for ETDs with multiple files.

Optional practice: N/A

Recommended Data Value: Use the DCMI Type vocabulary⁸. For most ETDs the type will be "text".

Example of Use:

<mods:typeOfResource>text</mods:typeOfResource>

Mapping to TDL ETD DC

<dc.type.material>text</dc.type.material>

Mapping to ETD-MS

<dc.type>text</dc.type>

Genre (M)

Definition: A term that designates a category characterizing a particular style, form, or content.

Mandatory practice: Encode the MARC genre term "thesis" in the <mods:genre> element. Set the authority attribute to "marcgt."

Optional practice: Other valid attributes within the <mods:genre> element may be used.

Recommended Data Value: Use the MARC Genre Term⁹ "thesis"

Example of Use:

⁸ <http://dublincore.org/documents/dcmi-type-vocabulary/>

⁹ <http://www.loc.gov/marc/sourcecode/genre/genrelist.html>

```
<mods:genre authority="marcgt">thesis</mods:genre>
```

Mapping to TDL ETD DC

```
<dc.type.genre>thesis</dc.type.genre>
```

Mapping to ETD-MS

```
<dc.type>thesis</dc.type>
```

Origin Information (M)

Definition: Information about the origin of the resource; in this case, specifically, the date of creation of the resource and the date of publication of the resource. The creation date is defined as the date the student graduates or the date the degree is conferred, expressed in YYYY-MM format. The publication date is defined as the date the ETD is released to the public.

Mandatory practice: Encode relevant dates for the ETD in the <mods:originInfo> wrapper element. Encode the year and month of the creation date, according to ISO 8601, in the <mods:dateCreated> subelement. Set the encoding attribute to "iso8601."

Note: The publication date is encoded in the <mods:dateIssued> subelement. This date is automatically generated by Dspace upon ingest and does not need to be encoded prior to ingest.

Optional practice: The day of the month may be included date encodings. Other valid subelements or attributes within the <mods:originInfo> element may be used.

Recommended Data Value: Expressed as YYYY-MM or YYYY-MM-DD, as specified by ISO 8601¹⁰.

Example of Use:

```
<mods:originInfo>
  <mods:dateCreated encoding="iso8601">2004-08</mods:dateCreated>
  <mods:dateIssued encoding="iso8601">2004-12</mods:dateIssued>
</mods:originInfo>
```

Mapping to TDL ETD DC

```
<dc.date.created>2004-08</dc.date.created>
<dc.date.issued>2004-12</dc.date.issued>
```

Mapping to ETD-MS

```
<dc.date>2004-08</dc.date>
<dc.date>2004-12</dc.date>
```

Language (M)

Definition: A designation of the language in which the content of a resource is expressed.

¹⁰ <http://www.w3.org/TR/NOTE-datetime>

Mandatory practice: Encode information about the language of the ETD in the <mods:language> wrapper element. Encode the language, according to ISO 639-2b, in the <mods:languageTerm> subelement. Set the type attribute to "code" and the authority attribute to "iso639-2b." The <mods:languageTerm> subelement is repeatable.

Optional practice: Other valid subelements or attributes within the <mods:language> element may be used.

Recommended Data Value: Use the ISO 639-2¹¹ code for the representation of the name of the language

Example of Use:

```
<mods:language>
  <mods:languageTerm type="code" authority="iso639-2b">eng</mods:languageTerm>
</mods:language>
```

Mapping to TDL ETD DC

```
<dc:language.iso>eng</dc:language.iso>
```

Mapping to ETD-MS

```
<dc:language>eng</dc:language>
```

Physical Description (M)

Definition: A designation of the physical presentation of the resource and a designation of the source of the digital file important to its creation, use and management.

Mandatory practice: Encode the physical description in the <mods:physicalDescription> wrapper element. Encode the MARC form term "electronic" in the <mods:form> subelement. Set the authority attribute to "marcform." Encode the MIME type in the <mods:internetMediaType> subelement. Encode the digital origin ("born digital" or "reformatted digital") in the <mods:digitalOrigin> subelement.

Optional practice: Other valid attributes within the <mods:physicalDescription> element may be used.

Recommended Data Value: Use the MARC form term¹², "electronic", for <mods:form>. The <internetMediaType> value is taken from Internet Media MIME types¹³. The <digitalOrigin> indicates the source of the digital file important to its creation, use and management. According to the MODS User Guidelines¹⁴, the following values may be used: "born digital" and "reformatted digital".

Example of Use:

```
<mods:physicalDescription>
  <mods:form authority="marcform">electronic</mods:form>
  <mods:internetMediaType>application/pdf</mods:internetMediaType>
  <mods:digitalOrigin>born digital</mods:digitalOrigin>
```

¹¹ http://www.loc.gov/standards/iso639-2/php/code_list.php

¹² <http://www.loc.gov/marc/sourcecode/form/formlist.html>

¹³ www.iana.org/assignments/media-types/index.html

¹⁴ <http://www.loc.gov/standards/mods/v3/mods-userguide-elements.html#physicaldescription>

</mods:physicalDescription>

Mapping to TDL ETD DC

<dc.format.medium>electronic</dc.format.medium>
 <dc.format.mimetype>application/pdf</dc.format.mimetype>
 <dc.format.digitalOrigin>born digital</dc.format.digitalOrigin>

Mapping to ETD-MS

<dc.format>electronic</dc.format>
 <dc.format>application/pdf</dc.format>
 <dc.format>born digital</dc.format>

Abstract (M)

Definition: The full text of the abstract of the thesis or dissertation.

Mandatory practice: Encode the abstract in the <mods:abstract> element. Include the language attribute encoded in ISO 639-2b.

Optional practice: Valid attributes within the <mods:abstract> element may be used.

Recommended Data Value: Full text of abstract as it appears on the title page or equivalent.

Note! If an abstract is not available, the value must contain the phrase, "Not available". Do not leave the abstract element empty.

Example of Use:

<mods:abstract lang="eng">This dissertation study presents a conceptual framework for implementing and assessing patient safety systems in healthcare institutions. The conceptual framework consists of critical processes and performance measures identified in the context of the 2003 Malcolm Baldrige National Quality Award (MBNQA) Health Care Criteria for Performance Excellence...</mods:abstract>

Mapping to TDL ETD DC

<dc.description.abstract>This dissertation study presents a conceptual framework for implementing and assessing patient safety systems in healthcare institutions. The conceptual framework consists of critical processes and performance measures identified in the context of the 2003 Malcolm Baldrige National Quality Award (MBNQA) Health Care Criteria for Performance Excellence...</dc.description.abstract>

Mapping to ETD-MS

<dc.description.abstract>This dissertation study presents a conceptual framework for implementing and assessing patient safety systems in healthcare institutions. The conceptual framework consists of critical processes and performance measures identified in the context of the 2003 Malcolm Baldrige National Quality Award (MBNQA) Health Care Criteria for Performance Excellence...</dc.description.abstract>

Subject (M)

Definition: A term or phrase representing the primary topic(s) on which a work is focused.

Mandatory practice: Encode topical subject terms in the <mods:subject> wrapper element. Encode individual terms or phrases in the <mods:topic> subelement. The <mods:subject> element is repeatable. For mappings to TDL ETD DC and ETD-MS the scheme qualifier should be used to indicate the controlled vocabulary (e.g. lcsh, tgm, mesh).

Optional practice: Controlled subject headings may be included by using the authority attribute of the <mods:topic> subelement. Other valid subelements or attributes within the <mods:subject> element may be used.

Recommended Data Value: The form of the heading should be taken from a standard or local thesaurus, such as the Library of Congress Subject Headings (LCSH). Keywords or subjects listed on the title page of the thesis or dissertation can be entered as well. Multiple subjects should be encoded by repeating the subject element for each subject.

Example of Use:

```
<mods:subject>
  <mods:topic>healthcare</mods:topic>
</mods:subject>
```

```
<mods:subject>
  <mods:topic>patient safety</mods:topic>
</mods:subject>
```

```
<mods:subject authority="lcsh">
  <mods:topic>Medical care</mods:topic>
  <mods:topic>Quality control</mods:topic>
  <mods:geographic>United States</mods:geographic>
  <mods:temporal>20th century</mods:temporal>
</mods:subject>
```

Mapping to TDL ETD DC

```
<dc.subject>healthcare</dc.subject>
<dc.subject>patient safety</dc.subject>
<dc.subject.lcsh>Medical care—Quality control—United States—20th century</dc.subject.lcsh>
```

Mapping to ETD-MS

```
<dc.subject>healthcare</dc.subject>
<dc.subject>patient safety</dc.subject>
<dc.subject.lcsh>Medical care—Quality control—United States—20th century</dc.subject.lcsh>
```

Identifier (M)

Definition: A locally defined, unique standard number, code, or handle that distinctively identifies a resource

Mandatory practice: Encode the unique identifier in the <mods:identifier> element. The <mods:identifier> element is repeatable.

Optional practice: The type attribute may be used in the <mods:identifier> element. Other valid attributes within the <mods:identifier> element may be used.

Recommended Data Value: Any unique identifier meaningful to the institution, e.g. OCLC number, Proquest number, bib number, handle, etc. It is recommended to define the type with an attribute that describes the unique identifier. For example, <mods:identifier type="oclc">, <mods:identifier type="proqst">, or <mods:identifier type="bib">.

Example of Use:

```
<mods:identifier type="proqst">742126641</mods:identifier>
```

Mapping to TDL ETD DC

```
<dc.identifier.proqst>742126641</dc.identifier.proqst>
```

Mapping to ETD-MS

```
<dc.identifier>742126641 </dc.identifier>
```

Location (M)

Definition: Identifies location of object in the form of a URL where it is available.

Mandatory practice: Encode the location in the <mods:location> wrapper element. Encode the uniform resource locator (URL) in the <mods:url> subelement.

Note: A handle location (persistent URL) is automatically generated in DSpace upon ingestion.

Optional practice: Other valid attributes within the <mods:identifier> element may be used.

Recommended Data Value: System supplied handle or persistent URL.

Example of Use:

```
<mods:location>
  <mods:url>http://handle.tamu.edu/1969.1/1042</mods:url>
</mods:location>
```

Mapping to TDL ETD DC

```
<dc.identifier.uri>http://handle.tamu.edu/1969.1/1042</dc.identifier.uri>
```

Mapping to ETD-MS

```
<dc.identifier>http://handle.tamu.edu/1969.1/1042</dc.identifier>
```

Degree Information (M)

Definition: Information about the conferred degree, including name, level, and discipline of degree.

Note: The MODS standard does not have elements specifically for theses and dissertations. In order to encode degree information in MODS, the <mods:extension> element is used to reference the ETD-MS schema.

Mandatory practice: Encode information about the conferred degree in the <etd:degree> wrapper element. Encode the degree name in the <etd:name> subelement. Encode the degree level in the <etd:level> subelement. Encode the degree discipline in the <etd:discipline> subelement.

Note! If degree name and degree discipline are not available, the values must contain the phrase, "Not available". Do not leave the degree elements empty.

Recommended Data Value: For degree name: Use the fully spelled out form of the degree name. For degree level: Use the level of education associated with the document. e.g. Master's, Doctoral, Post-doctoral, etc. For degree discipline: Use the area of study of the intellectual content of the document, such as the name of the program or major.

Example of Use:

```
<mods:extension>
  <etd:degree>
    <etd:name>Doctor of Philosophy</etd:name>
    <etd:level>Doctoral</etd:level>
    <etd:discipline>Educational Administration</etd:discipline>
  </etd:degree>
</mods:extension>
```

Mapping to TDL ETD DC

```
<thesis.degree.name>Doctor of Philosophy</thesis.degree.name>
<thesis.degree.level>Doctoral</thesis.degree.level>
<thesis.degree.discipline>Educational Administration</thesis.degree.discipline>
```

Mapping to ETD-MS

```
<thesis.degree.name>Doctor of Philosophy</thesis.degree.name>
<thesis.degree.level>Doctoral</thesis.degree.level>
<thesis.degree.discipline>Educational Administration</thesis.degree.discipline>
```

Record Information (M)

Definition: Information about the metadata record.

Mandatory practice: Encode information about the MODS record in the <mods:recordInfo> wrapper element. Encode the name of the agency that created the MODS record in the <mods:recordContentSource> subelement, with the authority attribute set to "marcorg." Encode the month, year, and day of the creation date of the record, according to ISO 8601, in the <mods:recordCreationDate> subelement. Set the encoding attribute to "iso8601." Encode the month, year, and day of the change date, according to ISO 8601, in the <mods:recordChangeDate> subelement. Set the encoding attribute to "iso8601." Encode the unique record identifier in the <mods:recordIdentifier> subelement.

Optional practice: Other valid attributes within the <mods:recordInfo> element may be used.

Example of Use:

```
<mods:recordInfo>
  <mods:recordContentSource authority="marcorg">
    TxCM
  </mods:recordContentSource>
  <mods:recordCreationDate encoding="iso8601">
    2005-08-26
  </mods:recordCreationDate>
  <mods:recordChangeDate encoding="iso8601">
    2005-08-26
  </mods:recordChangeDate>
  <mods:recordIdentifier>12345678</mods:recordIdentifier>
</mods:recordInfo>
</mods:mods>
```

Mapping to TDL ETD DC: N/A

Mapping to ETD-MS: N/A

Appendix A: Quick Reference Mapping Table

M=Mandatory O=Optional

MODS ETD Element <mods: > except where noted	TDL ETD DC Element	ETD-MS Element
Title Information (M) <titleInfo> <title> <subTitle>	<dc.title>	<dc.title>
Name of Author (M) <name type="personal"> <namePart type="given family date"> <role> <roleTerm type="Author">	<dc.creator>	<dc.creator>
Name of Thesis Advisor (M) <name type="personal"> <namePart type="given family date"> <role> <roleTerm type="Thesis advisor">	<dc.contributor.advisor>	<dc.contributor> <dc.contributor.role>
Name of Committee Member (O) <name type="personal"> <namePart type="given family date"> <role> <roleTerm type="Committee Member">	<dc.contributor.committeeMember>	N/A
Name of Degree Grantor (M) <name type="corporate" authority="Icnaf"> <namePart >Institution <namePart>Department <role> <roleTerm >	<thesis.degree.grantor> <thesis.degree.department>	<thesis.degree.grantor> <thesis.degree.grantor>
Type of Resource (M) <typeOfResource>	<dc.type.material>	<dc.type>

MODS ETD Element <mods: > except where noted	TDL ETD DC Element	ETD-MS Element
Genre (M) <genre>	<dc.type.genre>	<dc.type>
Origin Information (M) <originInfo> <dateCreated> <dateIssued>	<dc.date.created> <dc.date.issued>	<dc.date> <dc.date>
Language (M) <language> <languageTerm type="code" authority=iso639-2b>	<dc.language.iso>	<dc.language>
Physical Description (M) <physicalDescription> <form authority="marcform"> <internetMediaType> <digitalOrigin>	<dc.format.medium> <dc.format.mimetype> <dc.description.digitalOrigin>	<dc.format> <dc.format> <dc.description>
Abstract (M) <abstract lang="eng">	<dc.description.abstract>	<dc.description.abstract>
Subject (M) <subject> <topic> <subject authority="lcsch"> <topic> <geographic> <temporal>	<dc.subject> <dc.subject.lcsch>	<dc.subject> <dc.subject.lcsch>
Identifier (M) <identifier>	<dc.identifier>	<dc.identifier>

MODS ETD Element <mods: > except where noted	TDL ETD DC Element	ETD-MS Element
Location (M) <location> <url>	<dc.identifier.uri>	<dc.identifier>
Degree Information (M) <extension> <etd:degree> <etd:name> <etd:level> <etd:discipline>	<thesis.degree.name> <thesis.degree.level> <thesis.degree.discipline>	<thesis.degree.name> <thesis.degree.level> <thesis.degree.discipline>
Record Information (M) <recordInfo> <recordContentSource> <recordCreationDate> <recordChangeDate> <recordIdentifier>	N/A	N/A

Appendix B: Examples

Full example of ETD encoded in TDL ETD MODS

```
<?xml version="1.0" encoding="UTF-8"?>
<mods:mods
xmlns:mods="http://www.loc.gov/mods/v3"
xmlns:etd="http://www.ndltd.org/standards/metadata/etdms/1.0/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.loc.gov/mods/v3
http://www.loc.gov/standards/mods/v3/mods-3-1.xsd
http://www.ndltd.org/standards/metadata/etdms/1.0/
http://www.ndltd.org/standards/metadata/etdms/1.0/etdms.xsd">

<mods:titleInfo lang="eng">
  <mods:title>Critical processes and performance measures for patient
  safety systems in healthcare institutions</mods:title>
  <mods:subTitle>a Delphi study</mods:subTitle>
</mods:titleInfo>

<mods:name type="personal" authority="lcnaf">
  <mods:namePart type="given">Ralitsa B.</mods:namePart>
  <mods:namePart type="family">Akins</mods:namePart>
  <mods:namePart type="date">1967-</mods:namePart>
  <mods:role>
    <mods:roleTerm authority="marcrelator"
    type="text">Author</mods:roleTerm>
  </mods:role>
</mods:name>

<mods:name type="personal">
  <mods:namePart type="given">Bryan R.</mods:namePart>
  <mods:namePart type="family">Cole</mods:namePart>
  <mods:role>
    <mods:roleTerm authority="marcrelator" type="text">Thesis
    advisor</mods:roleTerm>
  </mods:role>
</mods:name>

<mods:name type="personal">
  <mods:namePart type="given">Eddie J.</mods:namePart>
  <mods:namePart type="family">Davis</mods:namePart>
  <mods:role>
    <mods:roleTerm type="text">Committee member</mods:roleTerm>
  </mods:role>
</mods:name>

<mods:name type="personal">
  <mods:namePart type="given">Yvonna S.</mods:namePart>
  <mods:namePart type="family">Lincoln</mods:namePart>
  <mods:role>
    <mods:roleTerm type="text">Committee member</mods:roleTerm>
  </mods:role>
</mods:name>

<mods:name type="personal">
  <mods:namePart type="given">Elvin E.</mods:namePart>
  <mods:namePart type="family">Smith</mods:namePart>
  <mods:role>
    <mods:roleTerm type="text">Committee member</mods:roleTerm>
  </mods:role>
</mods:name>
```

```

<mods:name type="corporate" authority="lcnaf">
  <mods:namePart>Texas A & M University</mods:namePart>
  <mods:namePart>Educational Administration and Human Resource
  Development</mods:namePart>
  <mods:role>
    <mods:roleTerm authority="marcrelator" type="text">Degree
    grantor</mods:roleTerm>
  </mods:role>
</mods:name>

<mods:typeOfResource>text</mods:typeOfResource>

<mods:genre authority="marcgt">thesis</mods:genre>

<mods:originInfo>
  <mods:dateCreated encoding="iso8601">2004-08</mods:dateCreated>
  <mods:dateIssued encoding="iso8601">2004-11</mods:dateIssued>
</mods:originInfo>

<mods:language>
  <mods:languageTerm type="code" authority="iso639-2b">
  eng
  </mods:languageTerm>
</mods:language>

<mods:physicalDescription>
  <mods:form authority="marcform">electronic</mods:form>
  <mods:internetMediaType>application/pdf</mods:internetMediaType>
  <mods:digitalOrigin>born digital</mods:digitalOrigin>
</mods:physicalDescription>

<mods:abstract lang="eng">This dissertation study presents a conceptual
framework for implementing and assessing patient safety systems in healthcare
institutions. The conceptual framework consists of critical processes and
performance measures identified in the context of the 2003 Malcolm Baldrige
National Quality Award (MBNQA) Health Care Criteria for Performance Excellence.
Methodology: The Delphi technique for gaining consensus from a group of experts
and forecasting significant issues in the field of the Delphi panel expertise
was used. Data collection included a series of questionnaires where the first
round questionnaire was based on literature review and the MBNQA criteria for
excellence in healthcare, and tested by an instrument review panel of experts.
Twenty-three experts (MBNQA healthcare reviewers and senior healthcare
administrators from quality award winning institutions) representing 18 states
participated in the survey rounds. The study answered three research questions:
(1) What are the critical processes that should be included in healthcare
patient safety systems? (2) What are the performance measures that can serve as
indicators of quality for the processes critical for ensuring patient safety?
(3) What processes will be critical for patient safety in the future? The
identified patient safety framework was further transformed into a patient
safety tool with three levels: basic, intermediate, and advanced. Additionally,
the panel of experts identified the major barriers to the implementation of
patient safety systems in healthcare institutions. The identified "top seven"
barriers were directly related to critical processes and performance measures
identified as "important" or "very important" for patient safety systems in the
present and in the future. This dissertation study is significant because the
results are expected to assist healthcare institutions seeking to develop high
quality patient safety programs, processes and services. The identified
critical processes and performance measures can serve as a means of evaluating
existing patient safety initiatives and guiding the strategic planning of new
safety processes. The framework for patient safety systems utilizes a systems
approach and will support healthcare senior administrators in achieving and
sustaining improvement results. The identified patient safety framework will

```

also assist healthcare institutions in using the MBNQA Health Care Criteria for Performance Excellence for self-assessment and quality improvement.</mods:abstract>

```
<mods:subject>
  <mods:topic>healthcare</mods:topic>
</mods:subject>
```

```
<mods:subject>
  <mods:topic>patient safety</mods:topic>
</mods:subject>
```

```
<mods:subject authority="lcsh">
<mods:topic>Medical care</mods:topic>
<mods:topic>Quality control</mods:topic>
<mods:geographic>United States</mods:geographic>
<mods:temporal>20th century</mods:temporal>
</mods:subject>
```

```
<mods:identifier type="proqst">775179661</mods:identifier>
```

```
<mods:location>
  http://handle.tamu.edu/1969.1/1042
</mods:location>
```

```
<mods:extension>
  <etd:degree>
    <etd:name>Doctor of Philosophy</etd:name>
    <etd:level>Doctoral</etd:level>
    <etd:discipline>Educational Administration</etd:discipline>
  </etd:degree>
</mods:extension>
```

```
<mods:recordInfo>
  <mods:recordContentSource authority="marcorg">
    TxCM
  </mods:recordContentSource>
  <mods:recordCreationDate encoding="iso8601">
    20050826
  </mods:recordCreationDate>
  <mods:recordChangeDate encoding="iso8601">
    20050826
  </mods:recordChangeDate>
  <mods:recordIdentifier>12345678</mods:recordIdentifier>
</mods:recordInfo>
</mods:mods>
</xml>
```

Full example of ETD encoded in TDL ETD DC

```
<?xml version="1.0" encoding="UTF-8"?>
<dublin_core schema="dc">
<dcvalue element="title">Critical processes and performance measures for
patient safety systems in healthcare institutions: a Delphi Study</dcvalue>

<dcvalue element="creator">Akins, Ralitsa B., 1967-</dcvalue>

<dcvalue element="contributor" qualifier="advisor">Cole, Bryan R.</dcvalue>

<dcvalue element="contributor" qualifier="committeeMember">Davis, Eddie
J.</dcvalue>
```


<dcvalue element="contributor" qualifier="committeeMember">Lincoln, Yvonna S.</dcvalue>

<dcvalue element="contributor" qualifier="committeeMember">Smith, Elvin E.</dcvalue>

<dcvalue element="type" qualifier="material">text</dcvalue>
 <dcvalue element="type" qualifier="genre">thesis</dcvalue>
 <dcvalue element="date" qualifier="created">2004-08</dcvalue>
 <dcvalue element="date" qualifier="issued">2004-12</dcvalue>
 <dcvalue element="language" qualifier="iso">eng</dcvalue>
 <dcvalue element="format" qualifier="medium">electronic</dcvalue>
 <dcvalue element="format" qualifier="mimetype">application/pdf</dcvalue>
 <dcvalue element="format" qualifier="digitalOrigin">born digital</dcvalue>

<dcvalue element="description" qualifier="abstract">This dissertation study presents a conceptual framework for implementing and assessing patient safety systems in healthcare institutions. The conceptual framework consists of critical processes and performance measures identified in the context of the 2003 Malcolm Baldrige National Quality Award (MBNQA) Health Care Criteria for Performance Excellence. Methodology: The Delphi technique for gaining consensus from a group of experts and forecasting significant issues in the field of the Delphi panel expertise was used. Data collection included a series of questionnaires where the first round questionnaire was based on literature review and the MBNQA criteria for excellence in healthcare, and tested by an instrument review panel of experts. Twenty-three experts (MBNQA healthcare reviewers and senior healthcare administrators from quality award winning institutions) representing 18 states participated in the survey rounds. The study answered three research questions: (1) What are the critical processes that should be included in healthcare patient safety systems? (2) What are the performance measures that can serve as indicators of quality for the processes critical for ensuring patient safety? (3) What processes will be critical for patient safety in the future? The identified patient safety framework was further transformed into a patient safety tool with three levels: basic, intermediate, and advanced. Additionally, the panel of experts identified the major barriers to the implementation of patient safety systems in healthcare institutions. The identified "top seven" barriers were directly related to critical processes and performance measures identified as "important" or "very important" for patient safety systems in the present and in the future. This dissertation study is significant because the results are expected to assist healthcare institutions seeking to develop high quality patient safety programs, processes and services. The identified critical processes and performance measures can serve as a means of evaluating existing patient safety initiatives and guiding the strategic planning of new safety processes. The framework for patient safety systems utilizes a systems approach and will support healthcare senior administrators in achieving and sustaining improvement results. The identified patient safety framework will also assist healthcare institutions in using the MBNQA Health Care Criteria for Performance Excellence for self-assessment and quality improvement.</dcvalue>

<dcvalue element="subject">healthcare</dcvalue>
 <dcvalue element="subject">patient safety</dcvalue>
 <dcvalue element="subject" qualifier="lcsh">
 Medical care--Quality control--United States--20th century</dcvalue>

<dcvalue element="identifier" qualifier="proqst">742126641</dcvalue>
 <dcvalue element="identifier" qualifier="uri">
<http://handle.tamu.edu/1969.1/1042></dcvalue>

<dublin_core schema="thesis">
 <dcvalue element="degree" qualifier="grantor">Texas A & M
 University</dcvalue>

```
<dcvalue element="degree" qualifier="department">Educational Administration and  
Human Resource Development</dcvalue>  
<dcvalue element="degree" qualifier="name">Doctor of Philosophy</dcvalue>  
<dcvalue element="degree" qualifier="level">Doctoral</dcvalue>  
<dcvalue element="degree" qualifier="discipline">Educational  
Administration</dcvalue>  
</dublin_core>  
</xml>
```