



A Digital Repository of Learning Objects

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Introduction

This is a plan for a Digital Repository of Learning Objects found within the Information Architecture and Knowledge Management master of science program at Kent State University. This document showcases knowledge organization systems (KOS) used create a tool for students and instructors for finding learning objects relevant to the IAKM program. The following table of contents provides an overview of each KOS used to create this digital repository. The conclusion includes a list of this plan's limitations.

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Facets

Course Content and Learning Objects

The course content and learning objects identified in the Digital Repository (DR) KOS overview document are as follows:

- lecture recordings
- screencasts
- assignment outlines
- quizzes
- practice exercises
- readings, and more*

* I recommend adding the following to the list of course content and learning objects:

- video files
- audio files
- image files
- power point (presentation) files
- course syllabi
- course overviews
- learning modules
- books

Recommended Facets

While identifying these facets, I was guided by Ranganathan's PMEST approach and BC2's list of facet categories.

Here are the facets I have chosen followed by a brief explanation for each choice:

- File
- Resource
- Topic
- Course
- Author
- Date

Facets Explanation

File

Users should be able to narrow a search for documents by the type of document file — such as image files, video files, presentation files, audio files. If a user were to search by topic, he or she would then benefit from being able to narrow that search by document type.

Resource

Resource type could be one of the listed learning objects or course content: lecture recordings, screencasts, assignment outlines, quizzes, practice exercises, readings, syllabus, course overview, books, etc.

Topic

Topics could range in depth from “information architecture” to “process flows,” for example. My taxonomy illustrates this (see Page 5).

Course

Where did this item of content first come from? What course? Users should be able to search by course origin to answer such questions. This also would allow a user to view all items of content from a given course.

Author

The course origin is not enough. Since the goal is to have items of content (learning objects) shared among courses and curriculums, users need to be able to view which instructors and students a specific learning object is associated with — who created this piece of content? To whom does this learning object belong?

Date

Allowing the user to sort by the academic year in which a learning object was used in curriculums would allow them to narrow in on specific semesters an item of content was created. This would then allow the user to view all content created and/or in a specific semester, allowing for better book-keeping of content. It's important to place a date on all of this content, since this is an evolving area of study.

Pick lists

File (listed alphabetically)

- Audio
- Image
- Presentation
- Text
- ideo

Resource (listed alphabetically)

- Article
- Assignment
- Lecture
- Module
- Quiz
- Test
- Syllabus

Topic (listed alphabetically)

- Business
- Content Strategy
- Document Management
- Information Architecture
- User Experience Design

Author (listed alphabetically by last name)

- Dolan, Sean
- Lei Zeing, Marcia
- Robins, David
- Sherman, Paul
- ... and so on ...

Date (listed chronologically)

- 2010
- 2011
- 2012
- 2013
- 2014
- 2015
- 2016
- ... etc. ...

Synonym rings

“Audio”

Sound file, sound files, sound, voice over, voice recording, audio file, audio lecture, voice-over, voiceover, audio files, recording, recorded audio

“Assignment”

Homework, exercise, coursework, task, job, project, assignment, assigned, assigned material, home work, work

“Syllabus”

Course outline, class outline, syllabus, curriculum, course structure, class structure, course guidelines, course rules, course rules, course plan, class plan

“Dolan, Sean”

dolan, sean dolan, sean d, sean d., dolan s., dolan s, sean, instructor dolan, shawn dolan, sean dolin, dolin, shawn dolin, instructor sean dolan, instructor shawn dolan, instructor shawn dolin, instructor dolin,

“User Experience Design”

UXD, ux d, ux design, user experience, user xd, u x d, ux, ux program, user experience design program, uxd program, ux d program, IA/UX, UX/UI, user exp. design, user exp.

Taxonomy

1. Topic

1.001 Business

- 1.001.01 Management
 - 1.001.01.01 Workflow Management
 - 1.001.01.99 Other
- 1.001.03 Intelligence
 - 1.001.03.01 Competitive Intelligence
 - 1.001.03.03 Narrative Intelligence
 - 1.001.03.05 Storytelling Intelligence
 - 1.001.03.99 Other
- 1.001.99 Other

1.002 Content Strategy

- 1.002.01 History of Content Strategy
- 1.002.03 Practices of Content Strategy
 - 1.002.03.01 Change Management
 - 1.002.03.03 Document Delivery
 - 1.002.03.05 Future-proofing
 - 1.002.03.07 Content Promotion
 - 1.002.03.09 Content Optimization
 - 1.002.03.99 Other
- 1.002.99 Other

1.004 Document Management

- 1.004.01 Principles of Document Management
- 1.004.03 Practices of Document Management
- 1.004.05 Technologies of Document Management
- 1.004.99 Other

1.006 Health Informatics

- 1.006.01 Health Information Systems
 - 1.006.01.01 Health Information Networks
 - 1.006.01.99 Other
- 1.006.03 Health Records Management
- 1.006.05 Electronic Medical Records
- 1.006.07 Health Informatics Law
- 1.006.99 Other

1.008 Information Architecture

- 1.008.01 Concepts of Information Architecture
 - 1.008.01.01 Organization
 - 1.008.01.03 Navigation
 - 1.008.01.05 Labeling
 - 1.008.01.09 Search
 - 1.008.01.99 Other
- 1.008.03 Practices of Information Architecture
 - 1.008.03.01 Blueprints
 - 1.008.03.03 Wireframes
 - 1.008.03.05 Process Flows
 - 1.008.03.99 Other
- 1.008.99 Other

(continues on next page)

- 1.010 Intellectual Capital Management
 - 1.010.01 Intellectual Capital
 - 1.010.01.01 Human Capital
 - 1.010.01.03 Social Capital
 - 1.010.01.09 Other
 - 1.010.03 Intellectual Property
 - 1.010.03.01 Brands
 - 1.010.03.03 Trademarks
 - 1.010.03.09 Other
 - 1.010.05 Intellectual Assets
 - 1.010.05.01 Lifecycle Approach
 - 1.010.05.09 Other
 - 1.010.99 Other
- 1.012 Knowledge Management
 - 1.012.01 Knowledge Assessment
 - 1.012.03 History of Knowledge Management
 - 1.012.05 Principles of Knowledge Management
 - 1.012.07 Research Methods
 - 1.012.07.01 Qualitative Research
 - 1.012.07.01.01 Conceptualization,
 - 1.012.07.01.03 Design,
 - 1.012.07.01.05 Data Collection
 - 1.012.07.01.07 Articulation
 - 1.012.07.01.09 Preliminary Implementation
 - 1.012.07.01.99 Other
 - 1.012.09 Knowledge Organization
 - 1.012.09.01 Taxonomy
 - 1.012.09.03 Classification
 - 1.012.09.03.01 Normative Principles
 - 1.012.09.05 Thesaurus
 - 1.012.09.09 Semantic Relationships
 - 1.012.09.09.01 Hierarchical Relationships
 - 1.012.09.09.03 Structures
 - 1.012.09.10 Ontology Construction
 - 1.012.99 Other
- 1.014 Semantic Analysis
- 1.020 Usability
- 1.022 User Experience Design
- 1.024 User Research
- 1.026 Content Management
- 1.028 Information Technologies
- 1.999 Other

9. Other

Note: There are more levels to this taxonomy which can be built out at any time.

Instructions for using this taxonomy:

Users seeking to find learning objects in a related field of study can zero in on specific learning objects associated with topics which are housed in an organized scheme. Selecting different topics at any level of the hierarchical structure will allow the user to find all associated learning objects. The assumption is that all learning objects have been tagged with the appropriate topics.

Examples of Learning Objects with notation codes from the taxonomy:

1. “Presentation: Hierarchical Relationships and Structures”

Codes:

- 1.012.09.09 Semantic Relationships
 - 1.012.09.09.01 Hierarchical Relationships
 - 1.012.09.09.03 Structures

2. Presentation: Normative Principles of Classification and Taxonomy

Codes:

- 1.012.09.01 Taxonomy
 - 1.012.09.03 Classification
 - 1.012.09.03.01 Normative Principles

Structural arrangement and notational features:

This taxonomy is arranged in a hierarchical structure. The top level of the hierarchy is “Topic,” which is noted in the taxonomy as “1.” The second level of the taxonomy is made of up broad topics from the IAKM curriculum, such as “Business” or “User Experience Design.” These topics are given numerical mnemonics such as “001” and “022.” The purpose of the three-digit mnemonic is to allow users to sort data more efficiently. If one wants to find all “Business” related topics, just look for “001.”

As one dives deeper into the levels of the taxonomy, the notation system goes back to using two-digit notations. This is done to avoid duplicate numerical mnemonics.

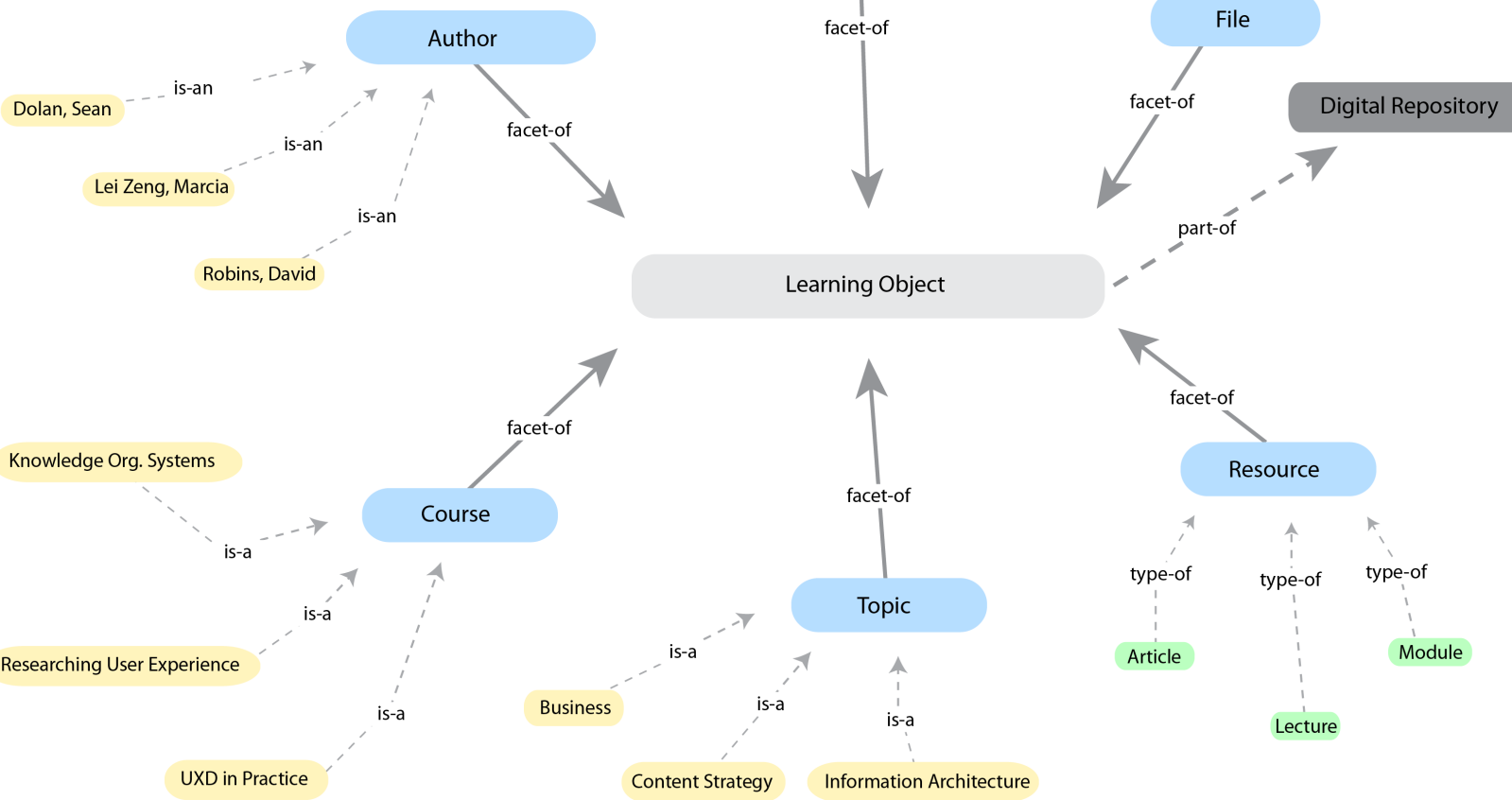
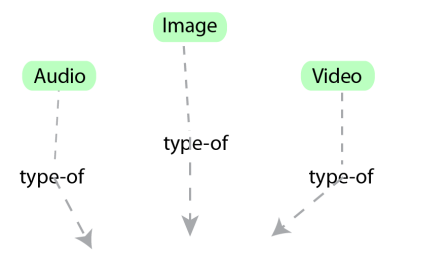
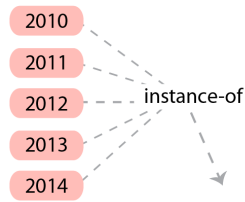
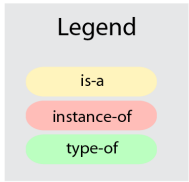
- Here is an example of why this would be a problem in such a taxonomy:

- 1.001 Business
 - 1.001.001 Management
 - 1.001.001.001 Workflow Management
 - 1.001.001.999 Other

In this case, “Management” and “Workflow” management would have the same mnemonic notation as “Business.” Thus, the taxonomy notation system would be much less helpful to a user searching for “Business” related topics, etc.

Semantic Network

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Data Dictionaries and Metadata Records

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Data Dictionary: Course

Name	Label	Definition	Comment	Example
courseTitle	Course Title	The title of a course as defined in the course catalog.	Do not include the course number in the title.	Knowledge Organization Structures, Systems, and Services
courseNumber	Course Number	The unique number identifying a course	A course may have more than one course number.	60002
courseSection	Section	Courses have specific section numbers.	Course sections are recognizable as three-digit numbers added to the end of course numbers.	60002-002
description	Description	The description of a course found in the course catalog	The course description also lists prerequisites.	See example here .
courseRestrictions	Restrictions	Criteria students must meet, other than prerequisites, to enroll in course.	There may be more than one restriction to a course.	Must be enrolled in one of the following Levels: Graduate
coursePrerequisites	Prerequisites	Prerequisites are criteria a student must complete before enrolling in a desired course.	Prerequisites may be listed within the course description.	Graduate standing.
Levels	Levels	The scholarly level of a course.	A course may be available at more than one level.	Graduate
courseScheduleType	Schedule Type	How a course is offered.	A course may have more than one schedule type.	Lecture
courseCreditHours	Credit Hours	How many credit hours a course is worth.	Some courses have a range of possible credit hours.	3.000

Name	Label	Definition	Comment	Example
courseLectureHours	Lecture Hours	How many lecture hours a course is worth.	Some courses have a range of possible lecture hours.	3.000
department	Department	The department from which a course is provided.	Department names may be abbreviated.	Library and Information Sci Department

Metadata Record: Course

Course Title	Knowledge Organization Structures, Systems, and Services
Course Number	60002
Course Section	60002-002
Description	(Slashed with IAKM 80002; Cross-listed with LIS 60636 and LIS 80636) Introduction to various types of knowledge organization systems/ services/structures (KOS) used in the networked environment. Understanding of the functional, philosophical, logical and linguistic fundamentals of KOS.
Restrictions	Must be enrolled in one of the following Levels: Graduate
Prerequisites	Graduate standing
Levels	Graduate
Schedule Type	Lecture
Credit hours	3.000
Lecture hours	3.000
Department	Library and Information Sci Department

Data Dictionary: Program

Name	Label	Definition	Comment	Example
programTitle	Program Title	The title given to a program within the KSU SLIS graduate school.	A program may have several different title variations.	User Experience Design
description	Description	A general overview of the graduate program as found on the Kent State SLIS website.	The description includes a list of topics.	See example here .

Name	Label	Definition	Comment	Example
programType	Type	The specific type of program being offered by the school.	This helps identify whether a program is a concentration of a broader program.	Master of Science Concentration
Levels	Levels	The level of a degree program offered by the university.	Kent State's SLIS offers several degree levels.	Graduate
admissionsDeadlines	Admissions Deadlines	The deadlines a person must meet for admission to a program.	There are several different types of admission requirements.	April 1: Summer Semester June 15: Fall Semester November 15: Spring Semester
admissionsQualifications	Admissions Qualifications	Qualification standards necessary for admissions to a program.	There are several different types of admission requirements.	Total GPA of 3.0 or higher in your highest completed degree.
Requirements	Program Requirement	The requirements for completing a program including the amount of credit hours needed to graduate.	Some programs have unique requirements.	Requires 36 credit hours, as follows: Core Curriculum = 6 credit hours (2 courses) Carousel/ Specialist Courses = 27 credit hours (9 courses) Culminating Experience = 3 credit hours
Curriculum	Curriculum	The topics and courses covered by a program.	This is a general overview of the curriculum.	See example here .

Metadata Record: Program

Program Title	User Experience Design
Description	The UXD program at Kent State University is designed to prepare professional user experience designers to work in agencies and within organizations and to immerse students in the following major components of the field: information architecture, usability, content strategy, organization of information, and user research. All courses are offered conveniently online.
Type	Master of Science Concentration

Levels	Graduate
Admissions Deadlines	April 1: Summer Semester June 15: Fall Semester November 15: Spring Semester
Admissions Qualifications	Bachelor's degree or equivalent to that earned from a regionally accredited institution in the United States. Total GPA of 3.0 or higher in your highest completed degree. GPA is calculated from the grades of all courses taken at the relevant level, baccalaureate or master. International students must provide evidence of English Language Proficiency. See the International Students page on our site for details on score requirements.
Program Requirement	Requires 36 credit hours, as follows: Core Curriculum = 6 credit hours (2 courses) Carousel/Specialist Courses = 27 credit hours (9 courses) Culminating Experience = 3 credit hours
Curriculum	Core/Introductory Courses (6 credit hours) Carousel/Specialist Courses (27 credit hours) Culminating Experience (3 credit hours)

Conclusion

Recap:

This Digital Repository of Learning Objects (DRLO) provides an organizational structure for learning objects found within the Kent State University Information Architecture and Knowledge Management (IAKM) graduate program, enabling users to search and find learning objects based on certain criteria such as facets. The facets identified are based on existing content found within the IAKM program.

An annotated taxonomy allows backend users and developers to organize the learning objects in a hierarchical structure with numeric identifiers. Every learning object has a specific home within the taxonomy.

A semantic network of data about the learning objects exists within the DRLO, which identifies relationships between a learning object, its facets and properties. Identifying these relationships is key to giving the DRLO a defined vocabulary and scope.

The data dictionaries and metadata records reveal a web vocabulary which connects learning objects based on properties.

Limitations:

- More research must be completed before the scope of this project can be set. Facets need to be identified based on research results.
- The taxonomy provided is not complete. It must be completed before this project can be implemented.
- Data dictionaries must be created for each facet, followed by metadata records for each learning object.
- More research must be completed to help create a successful web vocabulary.