Indexing “by competency”

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“Competency Index”

- **Topic**: a thematic set of competencies
  - **Competency**: a tweet-length phrase about knowledge or skills that can be learned
    - **Benchmark**: an action that demonstrates accomplishment in a given competency

LD4PE Competency Index
Example

- **Topic**: Querying RDF Data
  - **Competency**: Understands that a SPARQL query matches an RDF graph against a pattern of triples with fixed and variable values
  - **Competency**: Understands the basic syntax of a SPARQL query
    - **Benchmark**:Uses angle brackets for delimiting URIs.
    - **Benchmark:** Uses question marks for indicating variables.
    - **Benchmark**: Uses PREFIX for base URIs.

LD4PE Competency Index
Example

- **Topic**: **Querying RDF Data**
  - **Competency**: Understands that a SPARQL query matches an RDF graph against a pattern of triples with fixed and variable values
  - **Competency**: Understands the basic syntax of a SPARQL query
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LD4PE Competency Index

Topics

- **Fundamentals of Resource Description Framework**
- Identity in RDF
- RDF data model
- Related data models
- RDF serialization

- **Fundamentals of Linked Data**
- Web technology
- Linked data principles
- Linked Data policies and best practices
- Non-RDF Linked Data

- **RDF vocabularies and application profiles**
- Finding RDF-based vocabularies
- Designing RDF-based vocabularies
- Maintaining RDF vocabularies
- Versioning RDF vocabularies
- Publishing RDF vocabularies
- Mapping RDF vocabularies
- RDF application profiles

- **Creating and transforming RDF Data**
- Managing identifiers (URIs)
- Creating RDF data
- Versioning RDF data
- RDF data provenance
- Cleaning and reconciling RDF data
- Mapping and enriching RDF data

- **Interacting with RDF Data**
- Finding RDF Data
- Processing RDF data using programming languages
- **Querying RDF Data**
- Visualizing RDF Data
- Reasoning over RDF data
- Assessing RDF data quality
- RDF Data analytics
- Manipulating RDF Data

- **Creating Linked Data applications**
- Storing RDF data

LD4PE Competency Index
Example

- **Topic**: Querying RDF Data
  - **Competency**: **Understands** that a SPARQL query matches an RDF graph against a pattern of triples with fixed and variable values
  - **Competency**: **Knows** the basic syntax of a SPARQL query
    - **Benchmark**: **Uses** angle brackets for delimiting URIs.
    - **Benchmark: Uses** question marks for indicating variables.
    - **Benchmark**: **Uses** PREFIX for base URIs.

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"House style"

Competencies

- Understands
- Knows
- Recognizes
- Differentiates ...

Benchmarks

- Uses
- Expresses
- Demonstrates
- Distills
- Converts ...

understanding (learning)

doing (exam questions, homework assignments)

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Example

- **Competency**: Knows Web Ontology Language, or OWL (2004), an RDF vocabulary of properties and classes that extend support for expressive data modeling and automated inferencing (reasoning).
- **Competency**: Knows that the word “ontology” is ambiguous, referring to any RDF vocabulary, but more typically a set of OWL classes and properties designed to support inferencing in a specific domain.

Ideally, spells out acronyms and provides context to give non-expert readers a rough idea what they mean.

LD4PE Competency Index

Topics = Scope

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LD4PE Competency Index

Organizing principles

- **Follows a domain map** brainstormed by a workshop of experts in an earlier project
- **Avoids specifying levels of difficulty** because learners come from different backgrounds (computer versus library science)
- **Avoids implying ranking or ordering topics** for the same reasons

Competencies are building blocks that can be assembled into different courses or curricula.

LD4PE Competency Index

Audience

- **Independent learners** wanting to learn Linked Data technology
- **Professors and trainers** wanting to design and teach courses

LD4PE Competency Index
Granularity

- **Enough topics** to convey a map of the domain to be learned
- **Enough detail** to characterize the nature of competency in the domain
- **Not so much detail** that it reads like a manual or is likely to go out of date

Other competency indexes make other design choices, e.g., to support exams or ceritifcation.

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Sources of competencies

- **Expert warrant:** competencies are proposed and formulated by experts
- **Literature:** competencies are described in the literature
- **Available learning resources:** competencies are the topic of tutorials, YouTube videos, books, or courses

Saturday hands-on workshop

- Tools for exploring learning resources indexed “by competency”
- Tools for shaping a set of competencies into the trajectory for a course of learning