EUCLID
EdUcational Curriculum for the usage of LInked Data

Development of a Linked Data curriculum

Tutorial at WWW 2014

Dr. Alexander Mikroyannidis
Knowledge Media Institute
The Open University, UK

The Open University

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The Open University (OU) is the largest academic institution in the UK with:

- more than *250,000 students*
- close to *7,000 tutors*
- more than *1,200 full-time academic staff*
- more than *3,500 support and administrative staff*

Most OU courses are available throughout Europe and some are available worldwide.

Since its launch in 1969 more than *1.6 million people* worldwide have achieved their learning goals by studying with the OU.

Agenda

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- The EUCLID project
- The EUCLID curriculum & module production process
- The EUCLID learning materials
- Best practices for curriculum design & delivery

The EUCLID project

- A European project facilitating *professional training for data practitioners*, who aim to use Linked Data in their daily work.
- EUCLID delivers a curriculum implemented as a combination of *living learning materials and activities* delivered online & face-to-face.
- The EUCLID curriculum is *validated by the user community* through continuous feedback.

The EUCLID curriculum

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A series of modules, each targeting a different crucial task related to Linked Data:

1. Introduction and Application Scenarios
2. Querying Linked Data
3. Providing Linked Data
4. Interaction with Linked Data
5. Creating Linked Data Applications
6. Scaling up

The EUCLID learning materials

- Presentation slides
- Webinars
- Screencasts
- Exercises & quizzes
- eBook
- Online courses

The EUCLID module production process

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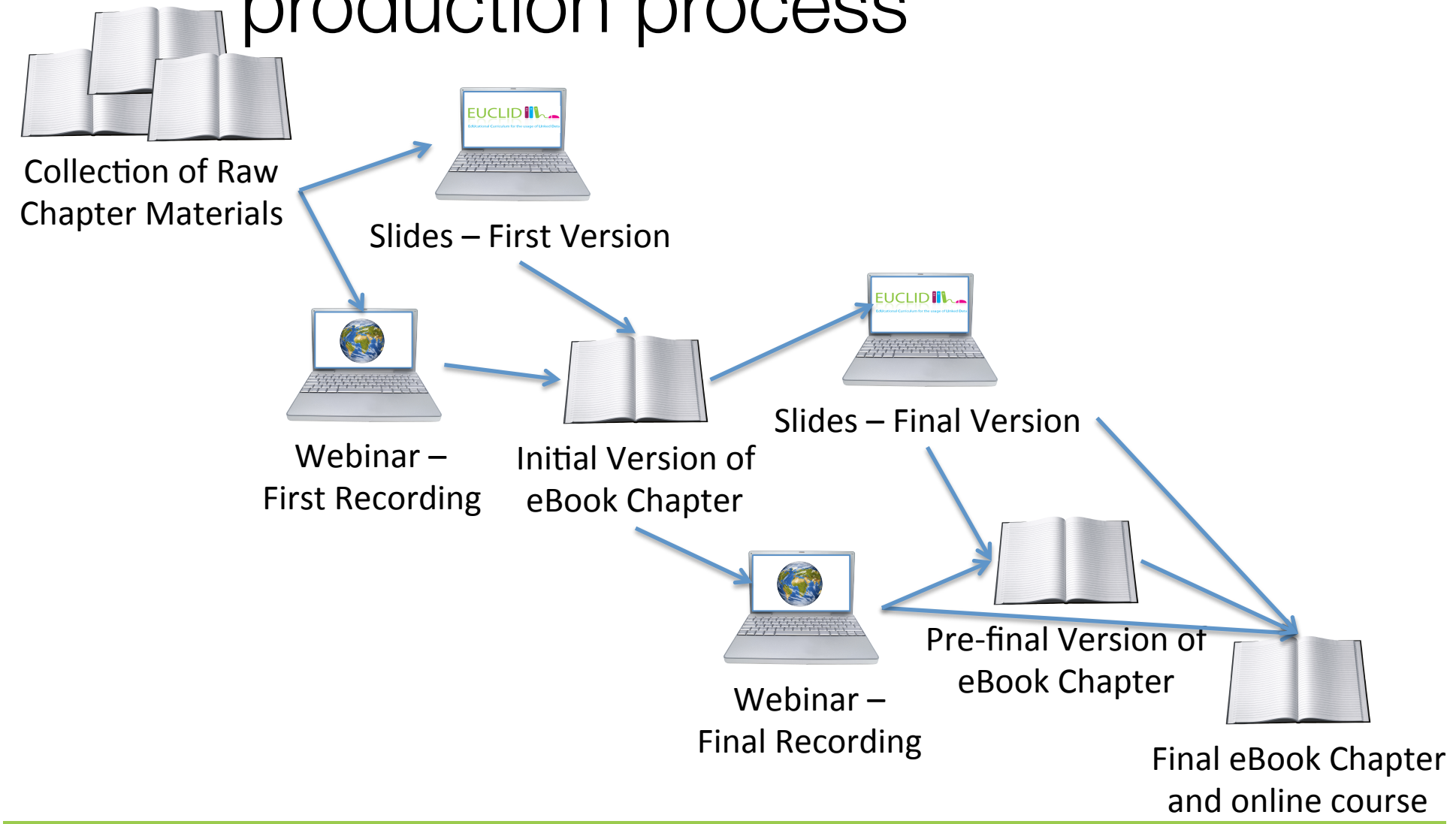

Presentation slides

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- These are the first training materials produced for each module. They provide an overview of the main concepts covered in each module.
- They also contain an extensive set of examples, so that the concepts of the module are explained to practitioners more effectively.

Webinars

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- The webinars are conducted based on the slides for each module.
- They are broadcasted live; the audience can ask questions via a chat facility.
- A recording is made available through the EUCLID channel in Vimeo.

Screencasts

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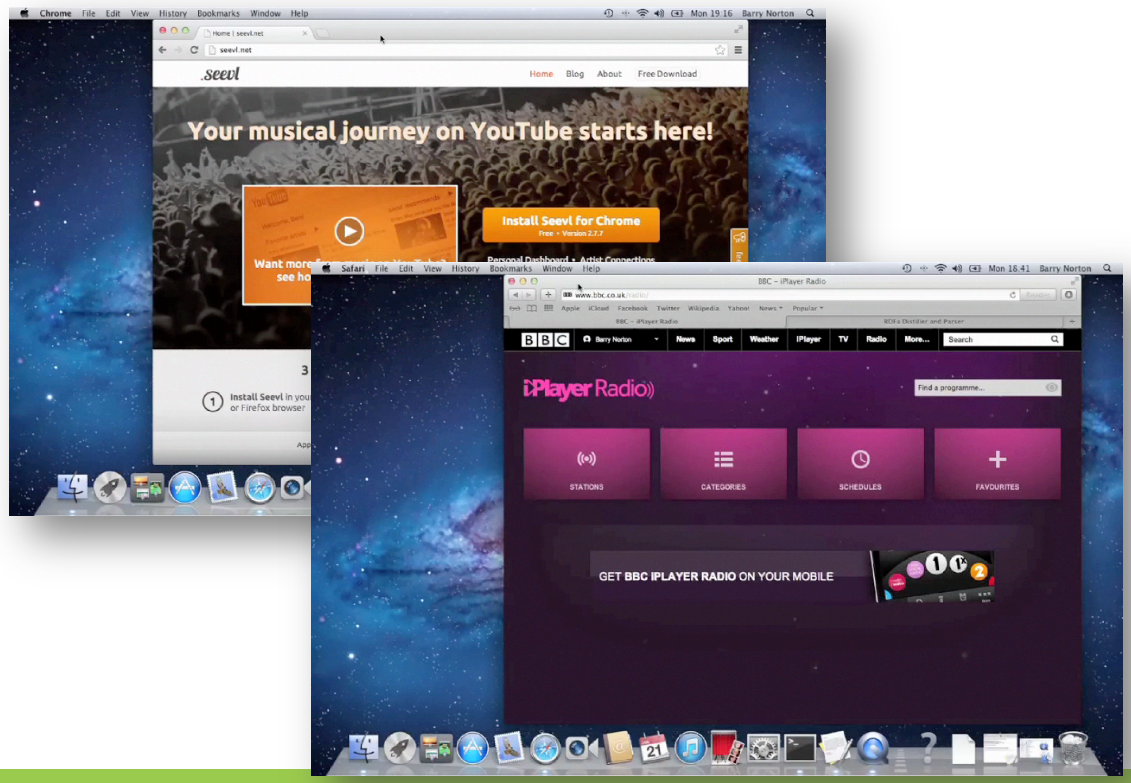
- They demonstrate the use of tools and platforms related to the EUCLID modules, e.g.:
  - Sig.ma
  - Data.gov.uk
  - BBC Music
  - Seevl
  - MusicBrainz
  - Sesame
  - OpenRefine
  - …and more



Exercises

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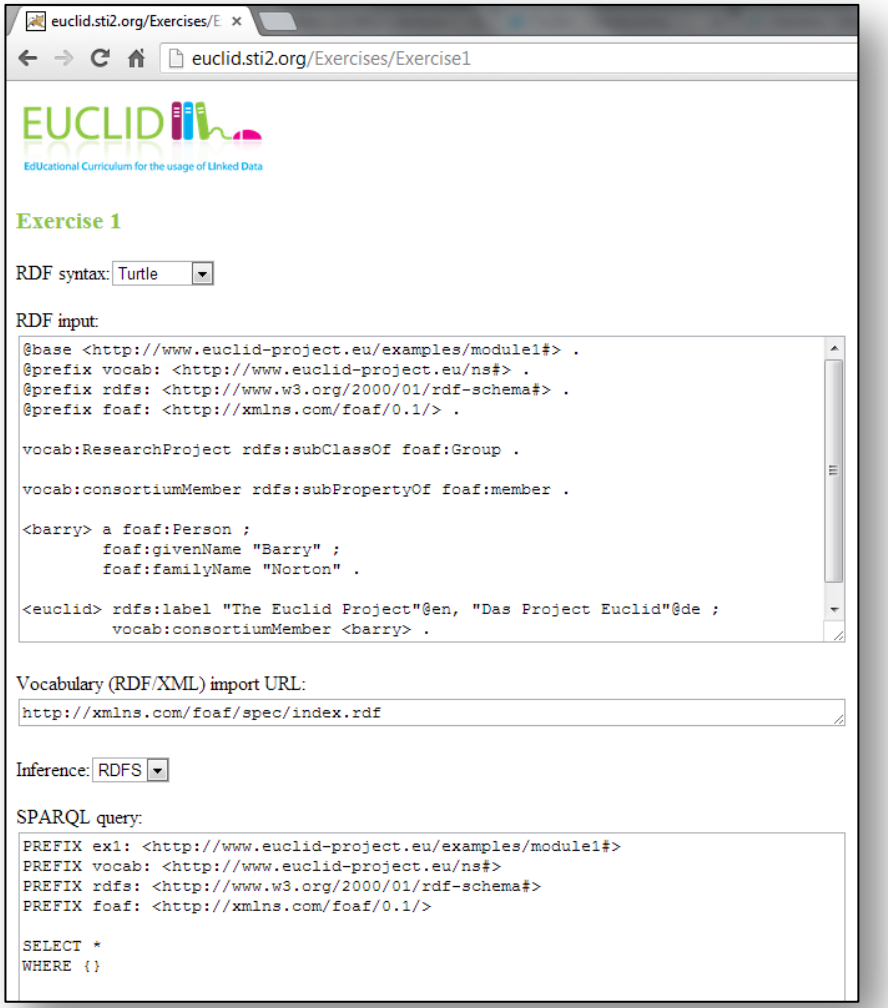

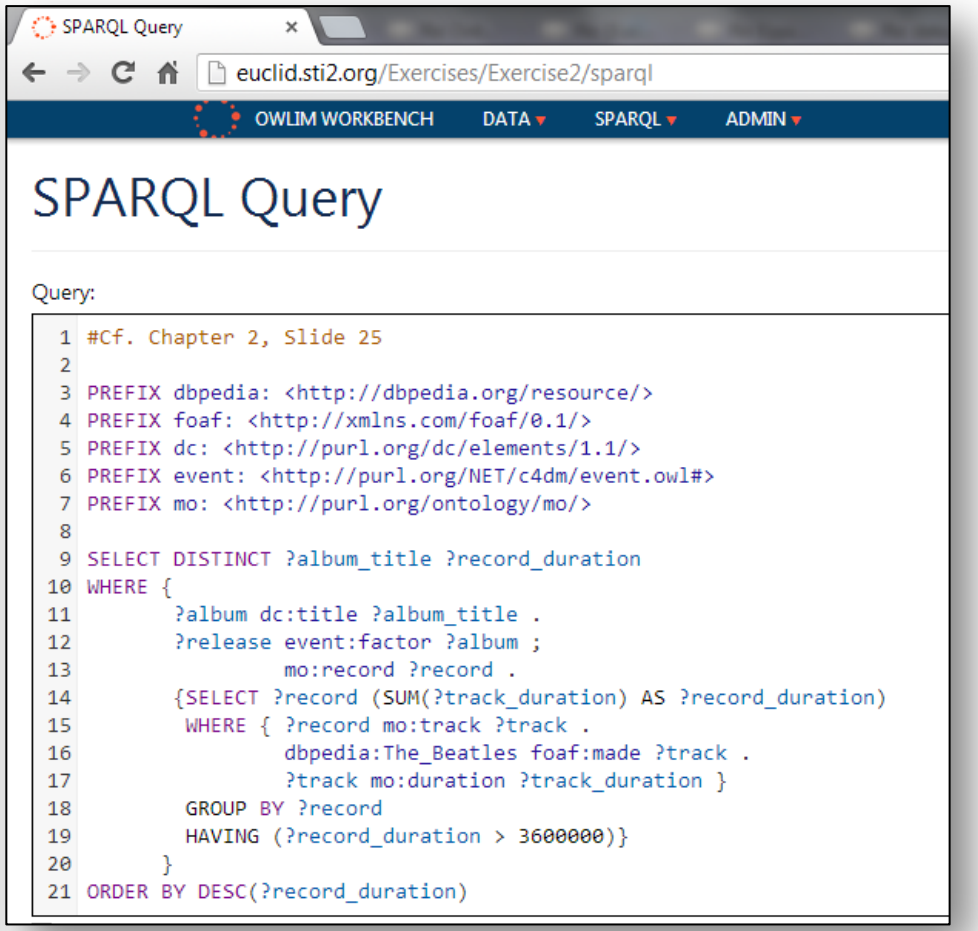

Quizzes

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Question 1 of 10

Which of the following are true of knowledge represented in RDF (select all that apply)?

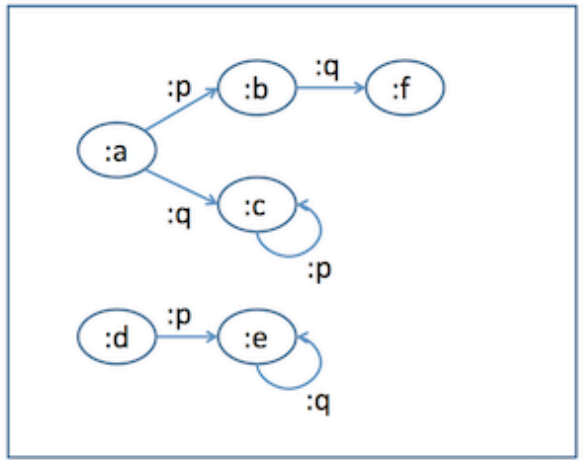
- **A.** The subject specifies the subject domain for the knowledge
- **B.** The object specifies any objections that may overturn the knowledge
- ✓ **C.** The predicate specifies the relationship between subject and object
- ✓ **D.** Relationships between any URI-identified resources can be specified

Check Answer

Question 2 of 10

Which of the following is among the bound results (select all that apply) when the following SPARQL query is executed over Graph 1?

- **A.** :a
- ✓ **B.** :b
- **C.** :c
- **D.** :d
- ✓ **E.** :e
- **F.** :f



:graph1

Check Answer

eBook

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- The EUCLID eBook encompasses the content for each module in a structured and interactive way.
- It is available for:
  - Web browsers (HTML format)
  - Apple iPad (iBook format)
  - Other tablets (ePUB format)
  - Amazon Kindle devices (MOBI format)

eBook in HTML

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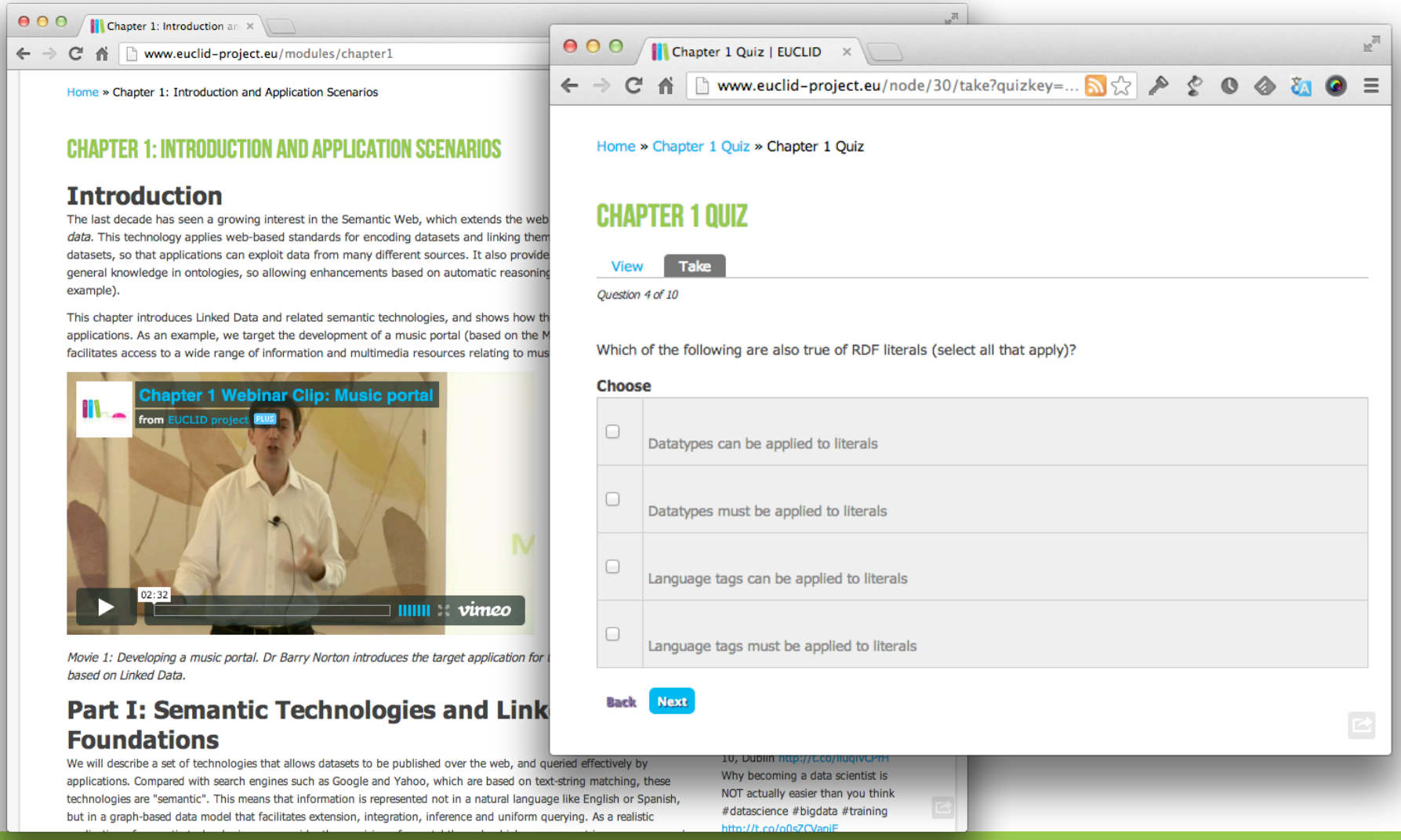

eBook on the iPad

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Online courses

EUCLID
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- The EUCLID online courses provide an integrated overview, structured as a learning pathway, of all the learning materials produced in the project.
- Learners can study them at their own pace, as there is no predetermined start or end date.
- They are available for:
  - Web browsers (HTML)
  - iPad, iPhone and iPod touch (iTunes U)

Online course in HTML

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Course 1: Introduction and ×

www.euclid-project.eu/modules/course1

4. Test your knowledge

How much have you learned from this learning pathway? Test your knowledge by completing the following quiz and exercise.

Take the Quiz (10 multiple-choice questions).

Study the following RDF statements, expressed in the Turtle syntax, then attempt the exercises that follow. For question 3 you should use the Euclid SPARQL endpoint.

```
@base <http://www.euclid-project.eu/examples/module1#> .
@prefix vocab: <http://www.euclid-project.eu/ns#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix foaf: <http://xmlns.com/foaf/0.1/> .

vocab:ResearchProject rdfs:subClassOf foaf:Group .

vocab:consortiumMember rdfs:subPropertyOf foaf:member .

<barry> a foaf:Person ;
        foaf:givenName "Barry" ;
        foaf:familyName "Norton" .

<euclid> rdfs:label "The Euclid Project"@en, "Das Projekt Euclid"@de ;
         vocab:consortiumMember <barry> .
```

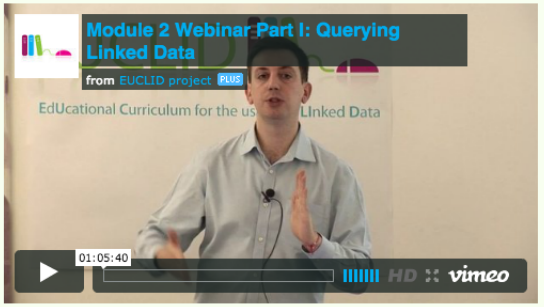
1. Re-express the statements in NTriples (i.e. remove all prefixes and abbreviations to give full triples in absolute URIs).
2. Add a resource representing yourself, attaching your name using the FOAF properties.
3. Execute the following SPARQL query and consider why the class "Agent" has members, even though none are explicitly asserted in the data: SELECT ?agent WHERE {?agent a foaf:Agent}
4. Add a property to "consortiumMember" to assert that all subjects should be research projects (members of the "ResearchProject" class).
5. Adapt the query from (3) to ensure that "euclid" is now a research project
6. Create a new property to relate training participants to research projects and use it to relate yourself with "euclid".

Use the Exercise 1 form to try out your RDF and SPARQL.

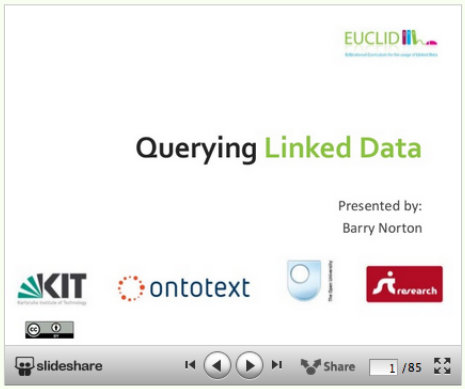
2. Introduction to SPARQL

Learn about the basic concepts of SPARQL, what types of queries SPARQL supports and how you can formulate them.

Watch Part I of the webinar 'Querying Linked Data' (65 minutes):



View the slides of this webinar:



Read Part I of Chapter 2 'Querying Linked Data':

Online course in iTunes U

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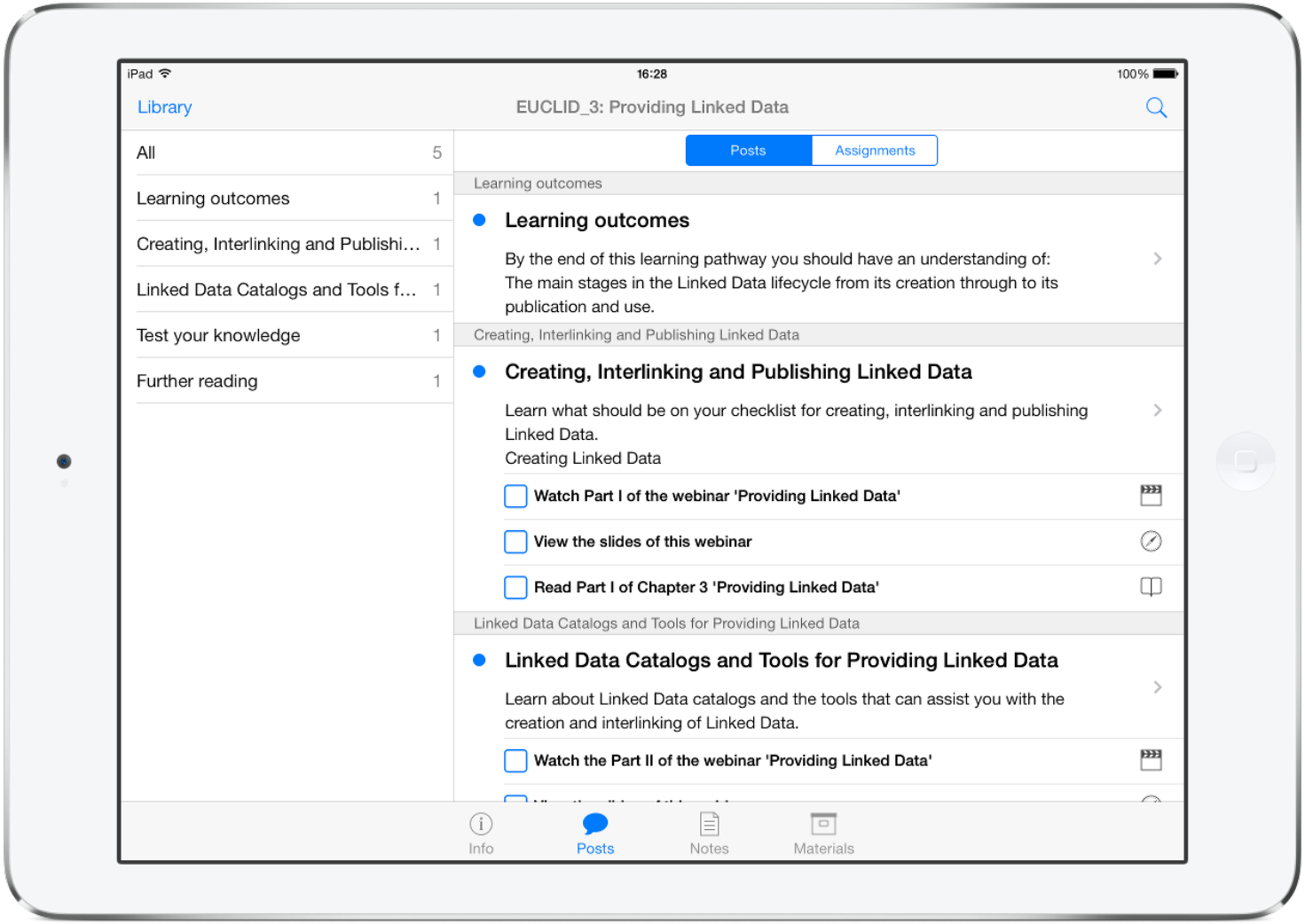

Best practices for curriculum design

EUCLID
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- Industrial relevance
- Team curriculum design
- External collaboration
- Explicit learning goals
- Show realistic solutions
- Use real data & tools
- Show scalable solutions
- Eating our own dog food

Best practices for curriculum delivery

EUCLID
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- *Open to format*

  Our learning materials are available in a variety of formats including: HTML and as an eBook, as an Apple iBook and on Amazon Kindles.

- *Addressibility*

  Every concept in our curriculum is URI-identified so that HTML and RDF(a) machine-readable content is available.

- *Integration*

  The main textual content, relevant webinar clips, screen casts and interactive components are placed into one coherent space.

Best practices for curriculum delivery

EUCLID
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- *High quality*

  We have a formalised process where all materials go through several iterations to ensure quality, e.g. for each module we run both a practice and a full webinars facilitating critique and commentary.

- *Self-testing and reflection*

  In every module, we include inline quizzes formulated against learning goals enabling students to self-monitor their progress.

Download our learning materials:

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www.euclid-project.eu

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