



International Conference  
**The Future of Education**  
Edition 9



# **MOOCs to semantic web education**

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## Summary:

### 1. Tomorrow is now

### 2. Semantic Web

- What is it?
- How to use it?
- Why use it?

### 3. MOOC

- What is it?
- How to use it?
- Why use it?

### 4. Exploratory study about MOOCs to study the Semantic Web



## Tomorrow is now

- ✓ Educational portals with content management
- ✓ e-Learning Systems, b-Learning, m-Learning
- ✓ Courses based on Learning Objects
- ✓ Intelligent Tutorials and Adaptive Hypermedia Systems
- ✓ and other educational technologies...

↪ **Self-learning:**  
- through dispersed content  
- through e-courses

**Yes!**

**But not everything is perfect...**





**Tomorrow is now**

**The current Web**

**Is the largest information repository...**

**is a world-wide media library ...**







**Tomorrow is now**

**The current Web will not be like...**



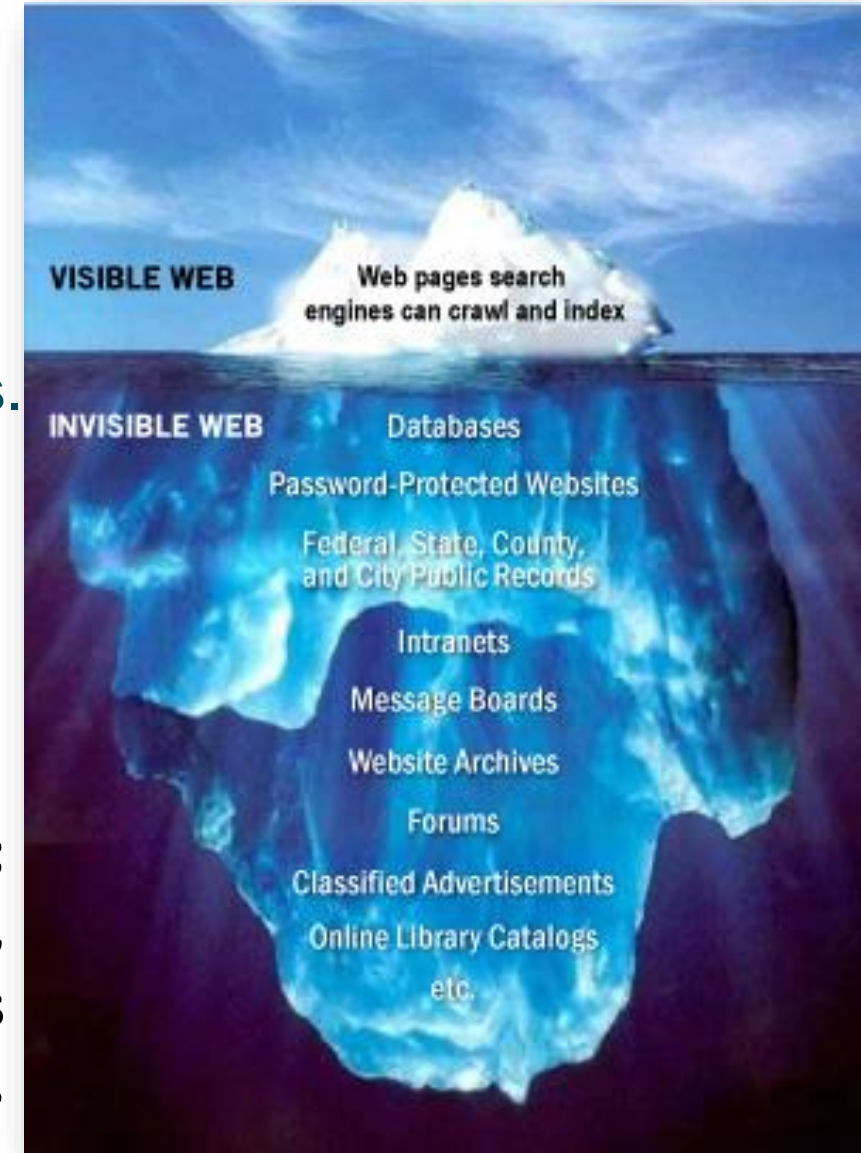
**...a mixture of books, magazines, music and movies?**

## Tomorrow is now

### Search engines

- It does not deal with the **relationship between 2 concepts**.
- It does not look for information in the **Deep Web**.
- It does not return **implicit knowledge**.

**Software agents do not distinguish:  
... poets from athletes,  
... colors from flowers  
... common names from proper names.**





## Tomorrow is now

### Why?

Web is  
people-oriented content  
And not  
content for machines.







## Semantic Web

**Not everything is bad**

*If we have*

*metadata and ontologies*

*annotation tools and ontologies tools*





## Semantic Web

Rely on the authenticity of sources

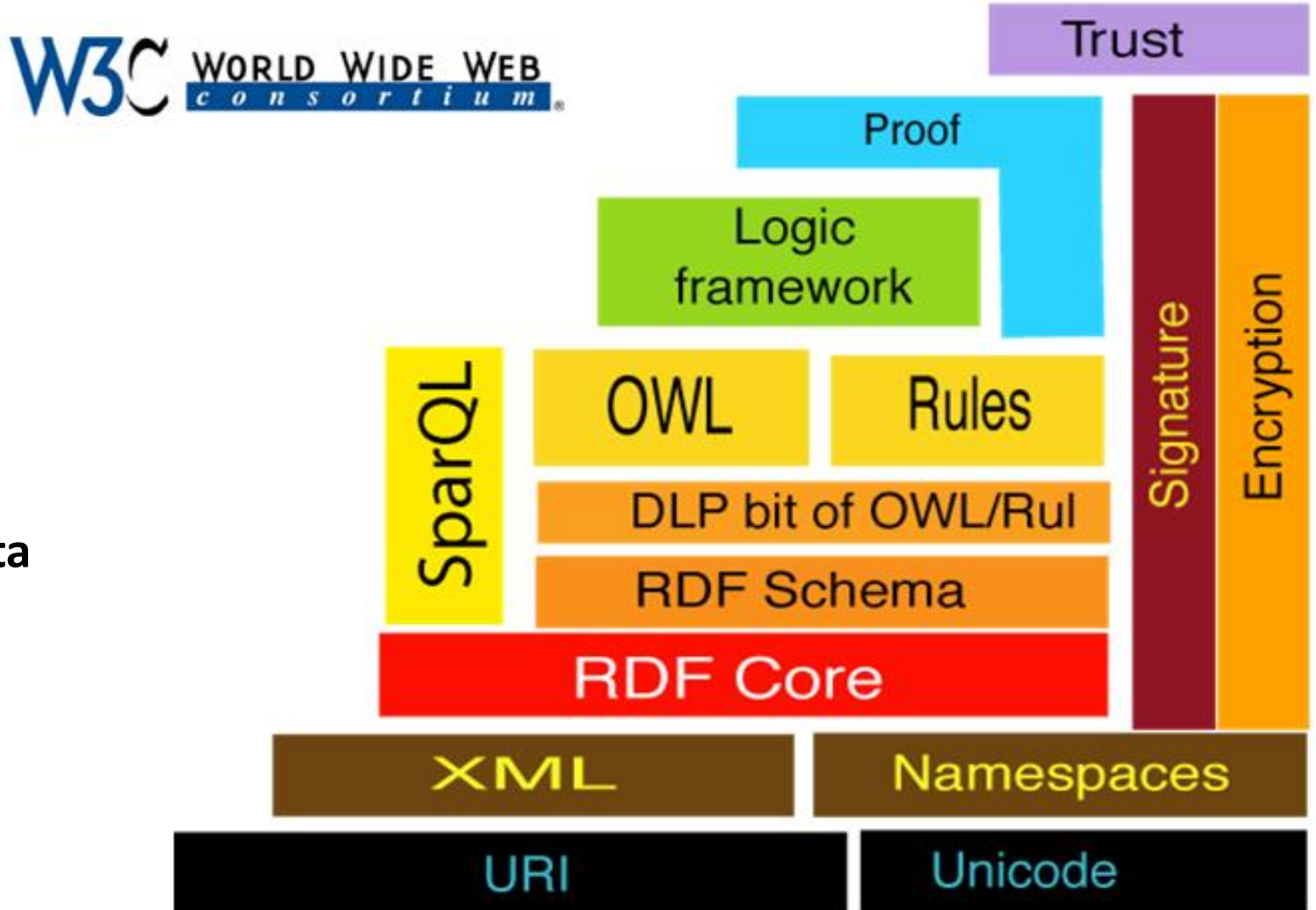
Recognize the truth of inferences

Define how to reason the data

Understand the meaning of the data

Assign meaning to data

Structuring and linking data





## Semantic Web

- **Metadata standards:**

- Sharable Content Object Reference Model (SCORM);
- IMS Content Packing (IMS-CP);
- IMS Learning Design (IMS-LD);
- Learning Object Metadata (LOM);
- Dublin Core Metadata (DCM).

- **Semantic Web technologies:**

- XML and metadata schemas;
- RDF (Resource Description Framework);
- Expressing Metadata in RDF/XML (LOM/RDF and DCM/RDF);
- Ontologies: Web Ontology Language (OWL) and Topic Maps (XTM);
- Rules: SWRL (Semantic Web Rule Language);
- Inference: SPARQL (RDF Query Language and Protocol).



## Semantic Web

*How to learn about Semantic Web?*





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## WHAT IS IT?

**M**

### **MASSIVE**

Classes may consist of up to 100,000+ students.

**O**

### **OPEN**

Registration is open to anyone around the world.

**O**

### **ONLINE**

The course is taken completely online.

**C**

### **COURSE**

They're similar to college courses, but don't offer credit.



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**MOOC ?**

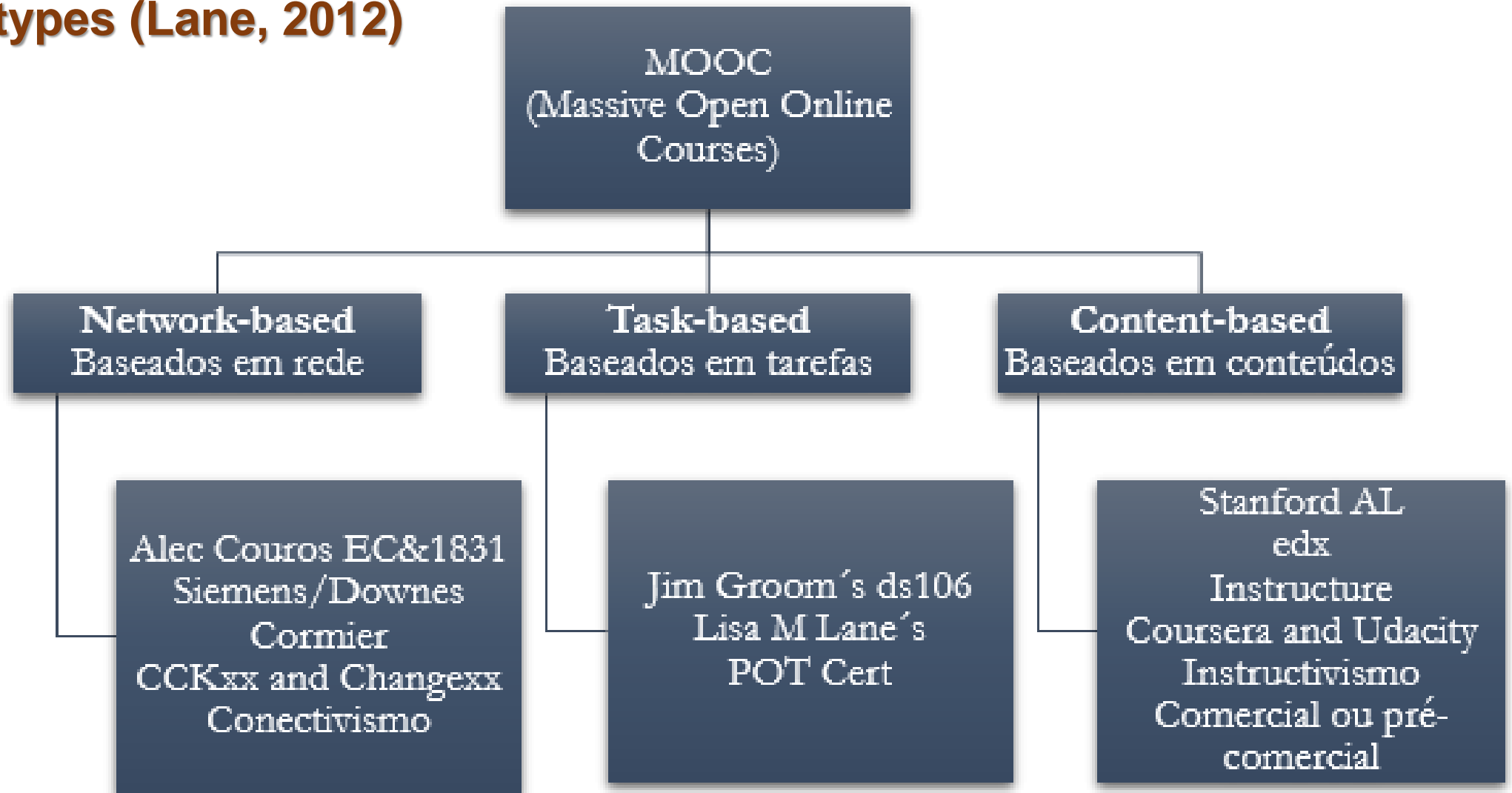
**xMOOC ?**

contents

**cMOOC ?**

contexts

❖ MOOC types (Lane, 2012)







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## ❖ MOOC Platforms





## ❖ MOOC Platforms: the most popular

Coursera ([www.coursera.org](http://www.coursera.org))



Udacity ([www.udacity.com](http://www.udacity.com))



edX ([www.courses.edx.org](http://www.courses.edx.org))



Udemy ([www.udemy.com](http://www.udemy.com))





## Objectives of the study:

Through an **exploratory study**, characterized as **documentary**, the intention was to:

- i. Identify a **set of MOOCs** oriented to the study of **the semantic web**;
  - ii. Determine the **contents** transmitted in **each** of the different **courses**;
  - iii. Perceive the **relevance of the Semantic Web** in contemporary education;
  - iv. Understand the **importance and contribution of MOOC to learning process**.
- Data collection was **carried out in March, 2019**, based on the keywords “semantic web”
  - **MOOCs** that were only based on the study of a **certain semantic technology were ignored**
  - **Content analysis** based on previously defined **research parameters** (content and tools)





## MOOCs in the context of the Semantic Web

Id	MOOC platform	Course designation
1	FUN	Semantic Web and Data Web
2	Coursera	The Semantic Web: Tools for the publication and effective extraction of information on the Web
3	Miriada X	Semantic Web and Linked Data (4. <sup>th</sup> edition)
4	Future Learn	Introduction to Linked Data and the Semantic Web
5	Future Learn	Web Science: How the Web Is Changing the World
6	OpenHPI	Knowledge Engineering with Semantic Web Technologies
7	OpenHPI	Linked Data Engineering
8	OpenHPI	Semantic Web Technologies
9	Udemy	Content Writing in the Semantic Web
10	Udemy	Semantic Web in 1 hour
11	Udemy	Learn Semantic Web - Next Phase of WWW in 1 Hour
12	UPV	Semantic Web and linked data



## MOOCs in the context of the Semantic Web

- i. Vídeos are the most present content.
- ii. Other contents: Presentation slides, PDF and articles
- iii. Assessment: quizzes, tests, exercises and programming tasks
- iv. Certificate of participation/completion: assessment mandatory
- v. Only one MOOC gives credits (ECTS), so MOOC is not yet on the agenda!
- vi. Contents are relatively superficial and they do not address the most important aspects of the topic:

**introduce the concepts to understand the semantic web key technologies, but they don't have practical exercises or challenges to practice.**



## Conclusions

In this study, we identified the **MOOCs related** to the theme of the **semantic web**

**The offer is scarce** considering the importance of the semantic web in the society

There are mainly MOOCs to obtain **essential** knowledge about the **semantic web and its technologies**, and not courses that **allow learning to make applications or contents**.

**We need more MOOCs to understand how semantic web is useful to education**, particularly regarding **teaching-learning in an era entirely based on technologies**. particularly **about developing semantic web applications**.



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**THANK YOU FOR YOUR ATTENTION!**

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