

# MODELLING COMPETENCIES UPON DOTLRN

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- The competency concept
- The element of the competency
- Approaches to model competencies
- Modelling Competencies upon dotLRN

# Competency Concept

Appropriate performances that should be demonstrated by a person on a specific context.

This performance should be adjusted to quality parameters, previously defined by a particular productive sector.

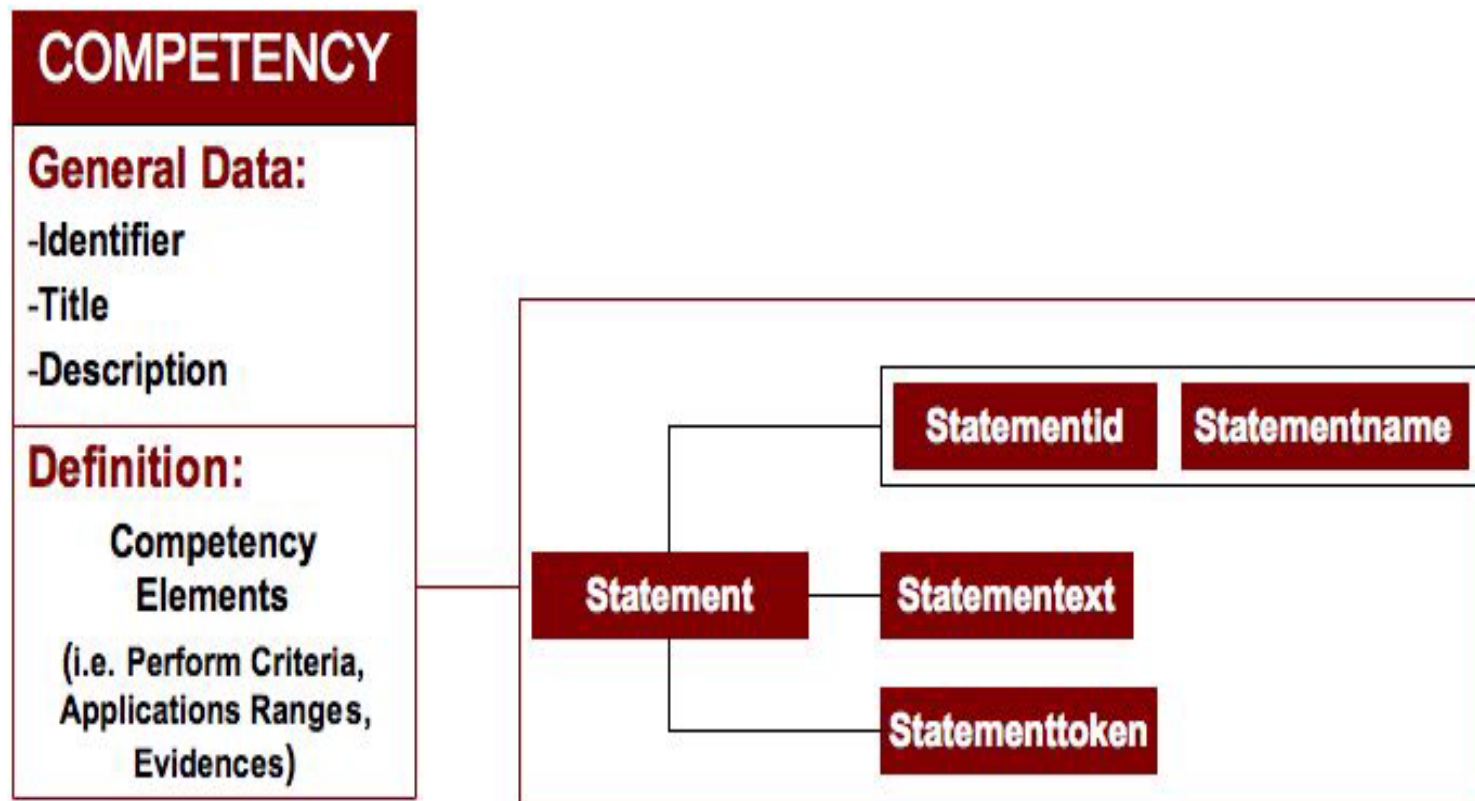
# Competency Elements

- A proper definition of competency should take into account at least four elements:
  - a description,
  - associated performance criteria,
  - ranges of application and
  - the necessary definition of evidences to evaluate the competency.

# Two approaches to model Competencies

- IMS Reusable Definition of Competency or Educational Objectives (IMS-RDCEO), created by the IMS Global Learning Consortium.
- Ontology – Based Competency Management development at Alcalá University.

# IMS Reusable Definition of Competency or Educational Objectives (IMS-RDCEO)



```
<?xml version="1.0" encoding="utf-8"?>
<rdceo xsi:schemaLocation="http://www.imsglobal.org/xsd/imsrdceo_rootv1p0
imsrdceo_rootv1p0.xsd"
xmlns="http://www.imsglobal.org/xsd/imsrdceo_rootv1p0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance">
  <identifier>http://www.ucm.es/IMS/rdceo_ejemplo.xml#ejemplo1 </identifier>
  <title> <langstring xml:lang="sp-ES">Read IMS Specifications</langstring>
</title>
  <description> <langstring xml:lang="sp-ES">Know IMS Specifications </langstring>
</description>
  <definition>
    <model>IMS Competency WG</model>
    <statement statementname="Performance Criteria">
      <statementtext>
        <langstring xml:lang="sp-ES">Understood IMS</langstring>
      </statementtext>
    </statement>
    <statement statementname="Aplications Ranges">
      <statementtext>
        <langstring xml:lang="sp-ES">Digital Documents</langstring>
      </statementtext>
    </statement>
    <statement statementname="Evidence">
      <statementtext>
        <langstring xml:lang="sp-ES">Develop XML Examples</langstring>
      </statementtext>
    </statement>
  </definition>
```

# Advantages and Limitations

## Advantages

- It provides a flexible and adaptable schema for describing competencies.
- It can be related to another knowledge specifications about the user

## Limitations

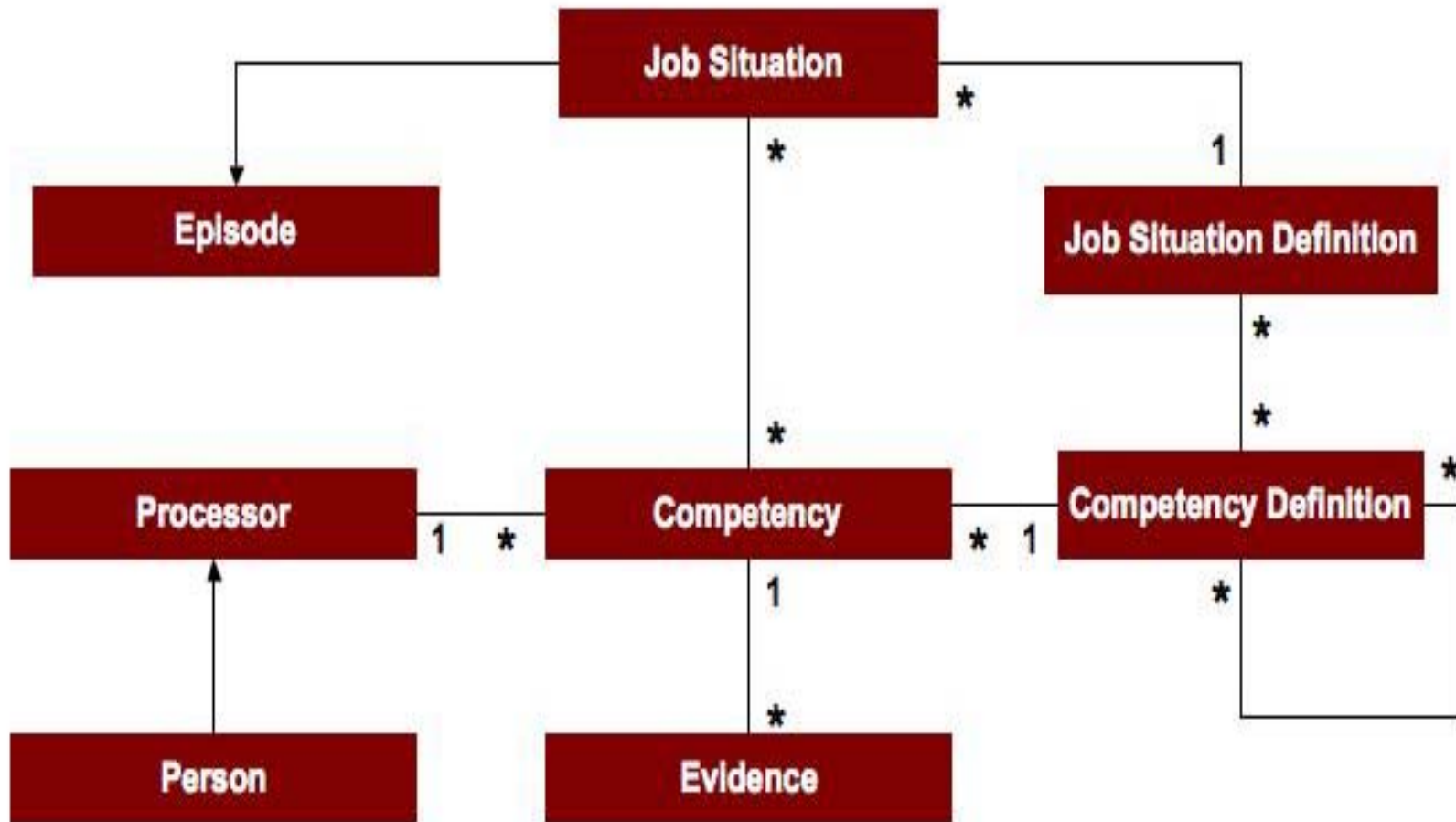
- It is a oversimplification of the concept of competency.
- IMS does not offer an adequate semantic level to support intelligent decisions because it does not consider, explicitly, important elements such as: some characteristics of users (knowledge, skills), desirable performances, different measure scales and does not propose a common language of competency.



# Ontology-based Competency Management approach

- Provides a rich set of modeling elements capable of expressing subtle details in competency schemas.
- Increases the possibility of establishing different kinds of relations among competencies.
- Offers different measure scales to evaluate diverse users characteristics.
- Takes into account the desire performances of a person.

# Ontology-based Competency Management approach



# Objective: dotLRN Competency Package

Develop a dotLRN XML-based package to specify the data structure to model the competencies associated to a course.

# The dotLRN Competency Package

## Using:

- a) the registered student interactions through their experience on the course, specially on the GRAIL (IMS-LD), LORS (SCORM) y Assessment (IMS-QTI) packages,
- b) the student interactions on the collaborative services such as discussion forums and storage area,
- c) the results of the aDeNu Group in EU4ALL Project regarding the characterization of the student using IMS-AccLIP specification.

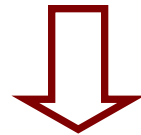
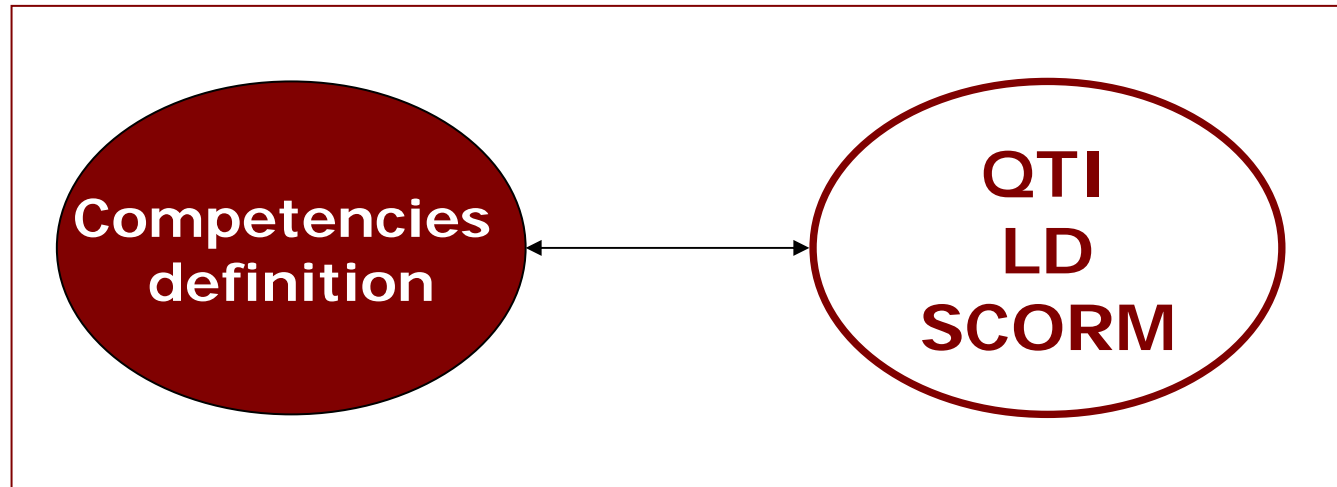
# The dotLRN Competency Package

- These specifications will be used with the purpose of generating a dynamic user model and the appropriate adaptation variables to adjust learning paths in order to satisfy students learning needs.

# The dotLRN Competency Package

- Those paths are to be generated through indicators about the achievement level of the competencies on the learning environment.
- To arrange, schedule, carry out, and evaluate the learning activities and relate them to the definition of competencies make possible the generation of necessary indicators to support adaptations decisions.

# The dotLRN Competency Package



**ACHIEVEMENT INDICATORS ABOUT  
THE LEVEL OF COMPETENCIES**



**PATH**

# Activities and Dates

ACTIVITY	DELIVERY DATE
<b>REQUIREMENT MODEL</b>	<b>15-05-2007</b>
Use Case Description	
Conceptual Class Diagrams	
<b>DESIGN MODEL</b>	<b>01-06-2007</b>
Class Diagrams	
Activity Diagrams	
Data Model	
Interfaces among components	
<b>IMPLEMENTATION MODEL</b>	<b>01-08-2007</b>
Prototype	
<b>TEST MODEL</b>	<b>15-08-2007</b>
Test Design	
Test Execution	
Contribution to the OpenACS/dotLRN community.	<b>01-09-2007</b>



**Thanks for your  
attention**