



Education and Culture DG

Lifelong Learning Programme
Leonardo da Vinci



GRupo de Investigación
en InterAcción y eLearning

Learning-Object Management for eLearning Systems

Researcher: Dra. Erla Mariela Morales Morgado

This presentation has been made under the auspices of the Lifelong Learning Programme – Leonardo da Vinci VETPRO Project “ELearning in flamenco rhythm” (Ref. 872A8A24631B9423). This project has been funded with support from the European Commission under the Lifelong Learning Programme. This presentation reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

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Introduction



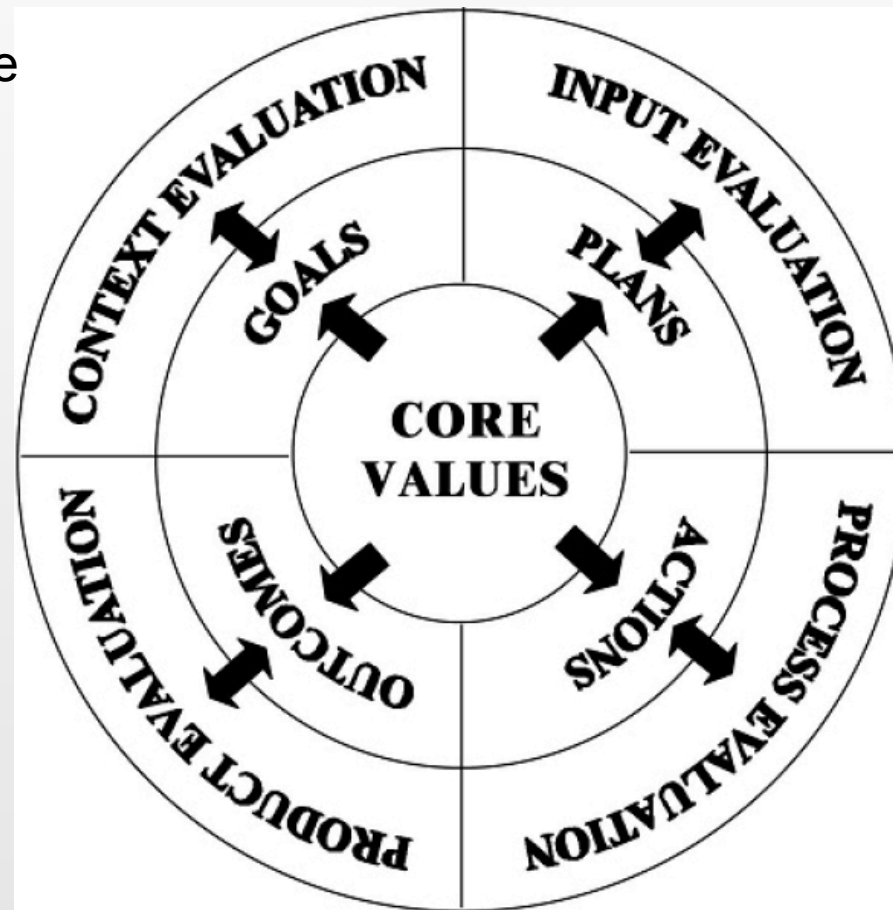
- Learning Object is "A digital self-contained and reusable entity, with a clear educational purpose, with at least three internal and editable components: content, learning activities and elements of context. The learning objects must have an external structure of information to facilitate their identification, storage and retrieval: the metadata."
- Knowledge management process needs to receive some evaluation in order to determine their suitable functionality.
- There is not a clear definition about the stages where LOs need to be evaluated and the specific metrics to continuously promote their quality.
- We suggest specific steps for LOs design, implementation and evaluation into the four stages proposed by CIPP model (Context, Input, Process, Product).

CIPP Model

Context, Input, Process and Product evaluation

LO design to promote competence skills

A tool for LOs evaluation



Ensure the LOs technical requirements

Students evaluate the course
Experts improve the LOs quality

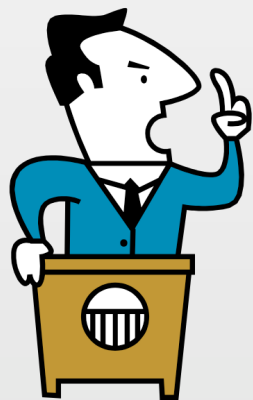
Take notes during the students interaction together with the LOs

Context Evaluation

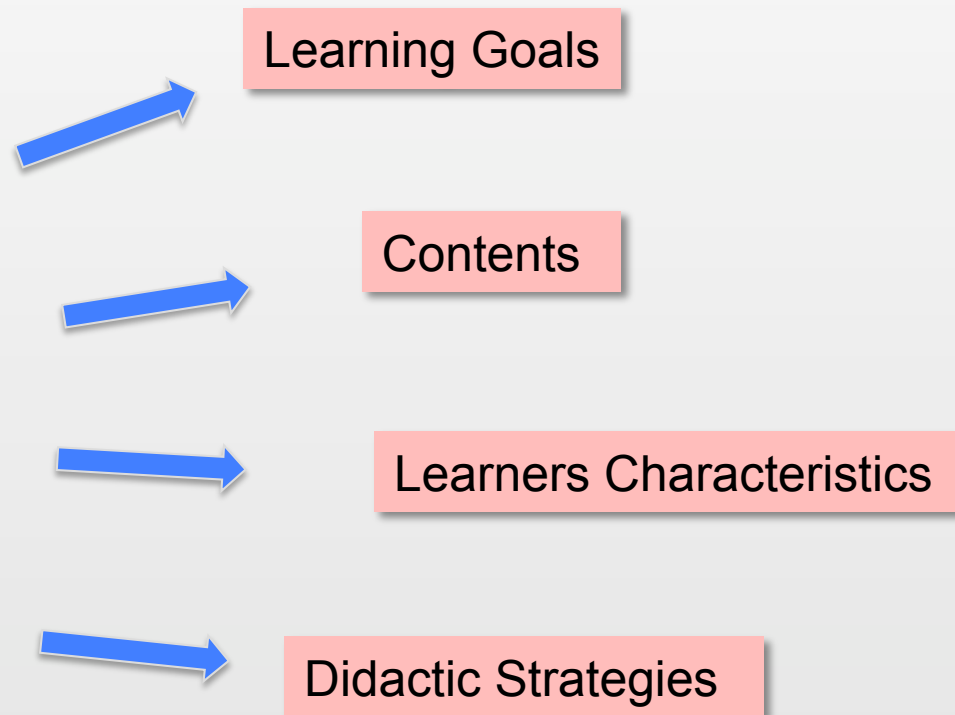


Professor investigate contextual variables during the instructional design and analyze what kind of Learning Objects they need

PROFESSOR



Analyze

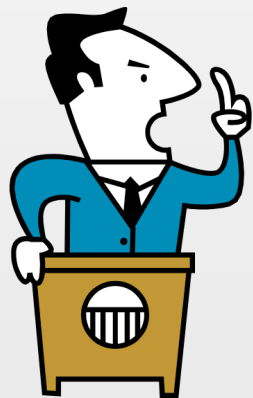


A proposal for LO design



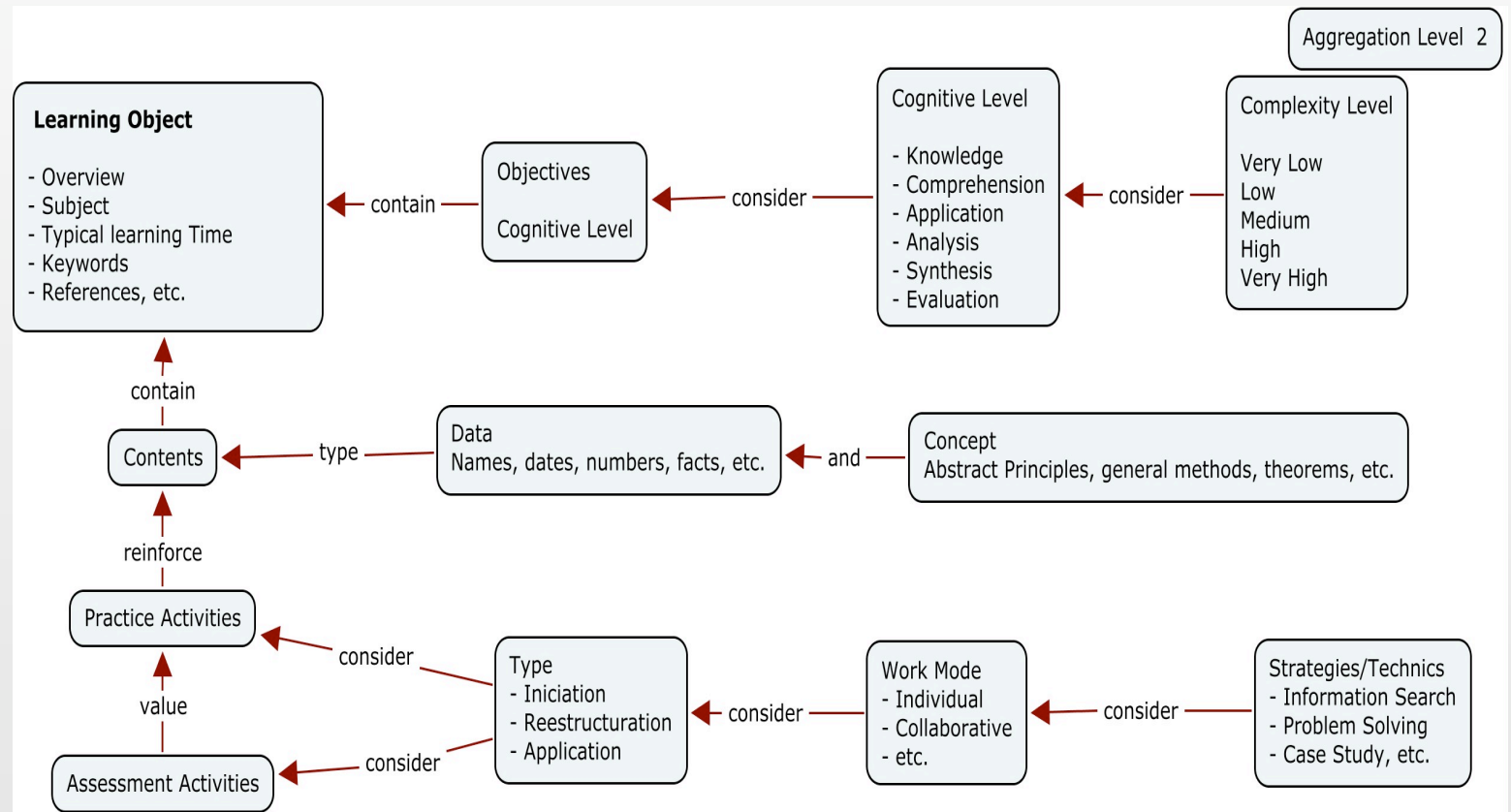
To develop specific skills

PROFESSOR



Design Learning Objects

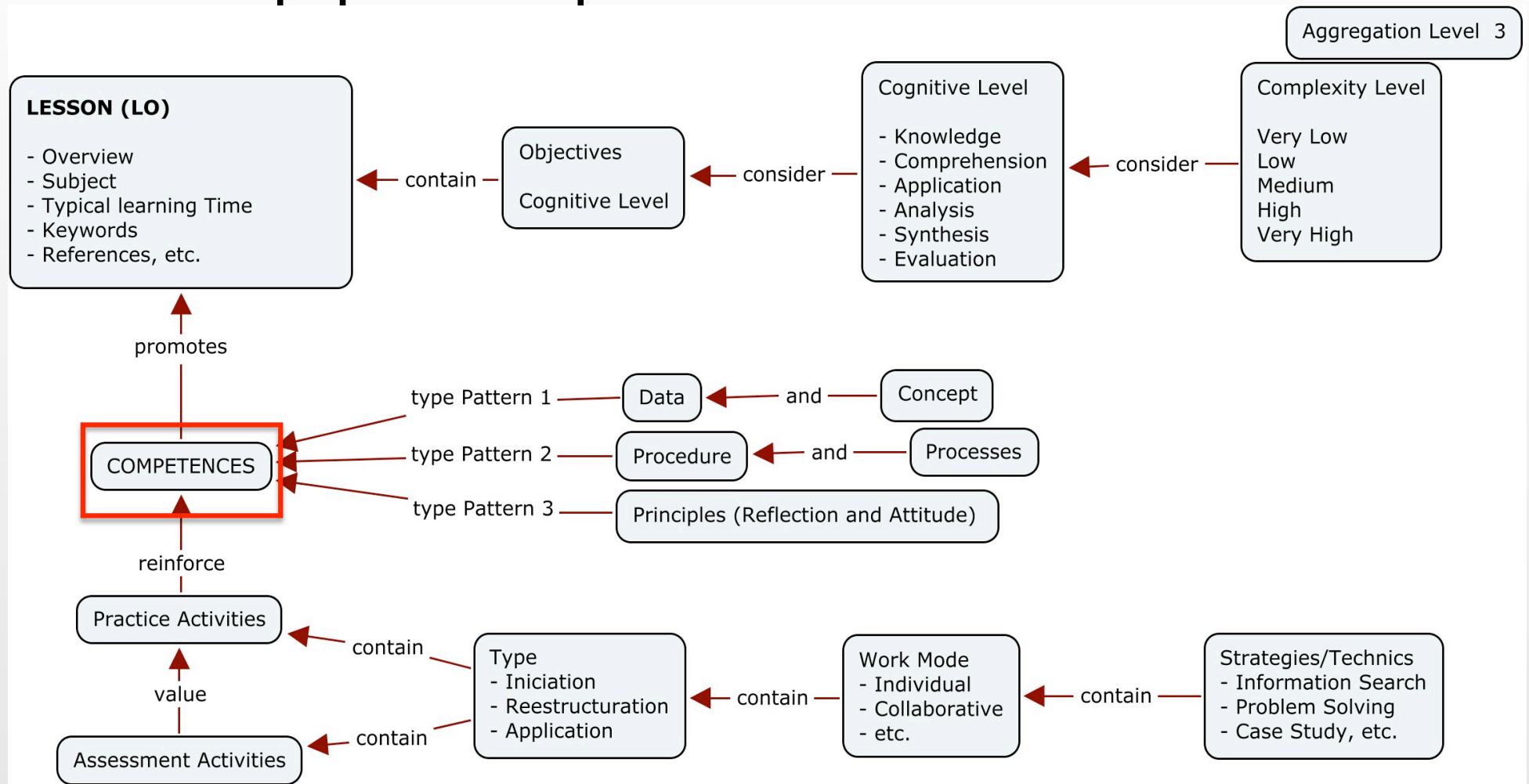
Normalization



A proposal for LO design



To develop specific competences



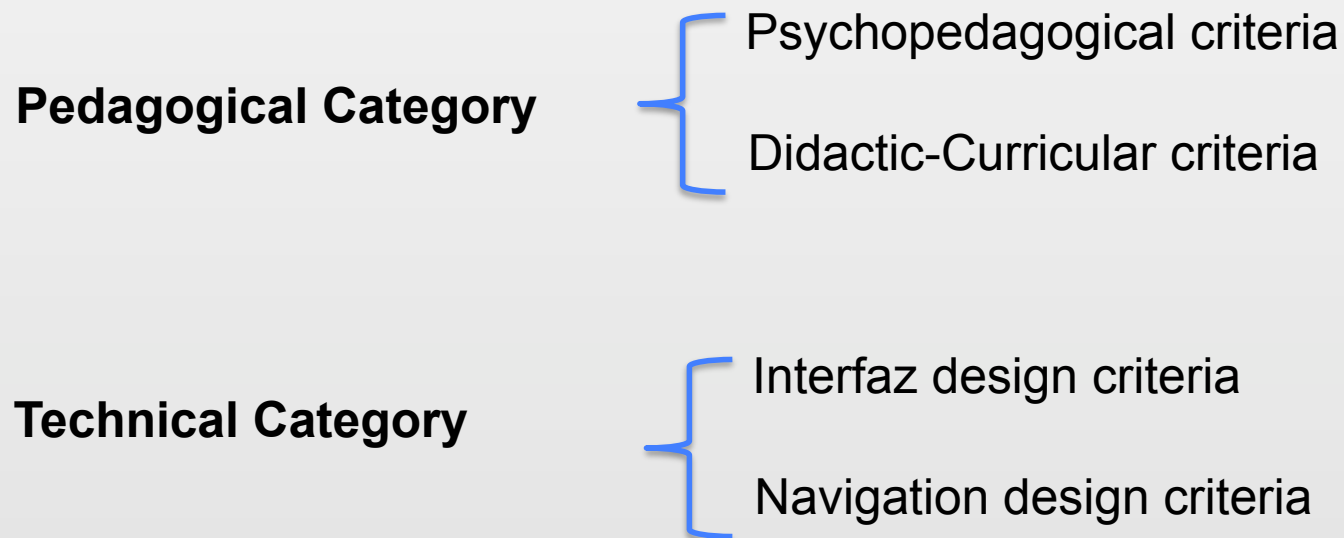
HEODAR instrument



HEODAR is an instrument for Learning Objects Evaluation (Acronym of the **H**erramienta de **E**valuación de **O**bjetos **D**idácticos de **A**prendizaje **R**eutilizables)

HEODAR evaluates LOs (SCORM) into Moodle

HEODAR consider the following evaluation categories:



HEODAR activity



HEODAR is included into the Activity module

The screenshot shows a Moodle course page with the following elements:

- At the top, two dropdown menus: "Agregar recurso..." and "Agregar actividad...".
- The "Agregar actividad..." menu is open, showing a list of activity types. "HEODAR" is highlighted in blue.
- The main content area is titled "4 Objeto de Aprendizaje 1".
- Underneath the title, there are two resource items: "OA 1 formato SCORM" (highlighted with a red box) and "OA 1 Formato HTML".
- Below the resources, there is a section titled "Actividades:" containing a list of activities with icons and user names: "Foro de discusión evaluación de OA 1", "MªDOLORES_LOPEZ_MATEOS", "ANTONIO", "Cristina Arroyo", "Fernando González", and "Luis Alberto Amador".

HEODAR configuration



Adding a new HEODAR to topic 3 ?

Name* My LO evaluation

Descripción ?

Trebuchet 1 (8 pt) Idioma

Ruta:

Objeto a evaluar* OA 1 formato SCORM

module settings Visible

Save and return to course Cancel

Note: A blue arrow points from the text 'Choose a LO' to the dropdown menu for 'Objeto a evaluar'.

- Novedades
 - Instrucciones
 - Agregar SCORM en Moodle
 - Evaluación de OAs
 - My LO evaluation**
- Note: A blue arrow points from the text 'Open the HEODAR form' to the 'My LO evaluation' item, which is highlighted with a red box.*

Choose a LO

Open the HEODAR form

HEODAR form



An example of Pedagogical Category

Pedagogical Criteria

Psychopedagogical Category

Motivation and Attention

Presentation: Attracts learners' attention, maintaining their motivation

N/S Very deficient Deficient Acceptable High Very High

Adds important information: Information needs to be relevant to the LO subject

N/S Very deficient Deficient Acceptable High Very High

Learner participation: LO very clearly explains how learners can participate in the lesson

N/S Very deficient Deficient Acceptable High Very High

Professional Competency

The LO helps users to achieve their professional competency

N/S Very deficient Deficient Acceptable High Very High

Level of Difficulty

Level of difficulty of the contents: Needs to be suited to the users' cognitive domain

N/S Very deficient Deficient Acceptable High Very High

Language: Needs to be suited to the users' prior level of knowledge

N/S Very deficient Deficient Acceptable High Very High

HEODAR form



An example of Technical Category

Usability Criteria

Interface Design

Text

Organized into short paragraphs, without breaking paragraphs or the continuity of the ideas expressed in them	<input type="radio"/> N/S	<input type="radio"/> Very deficient	<input type="radio"/> Deficient	<input type="radio"/> Acceptable	<input type="radio"/> High	<input type="radio"/> Very High	<input type="radio"/>
Uses hypertext to divide extensive information into multiple pages	<input type="radio"/> N/S	<input type="radio"/> Very deficient	<input type="radio"/> Deficient	<input type="radio"/> Acceptable	<input type="radio"/> High	<input type="radio"/> Very High	<input type="radio"/>
Marks blocks of contents using titles or sections	<input type="radio"/> N/S	<input type="radio"/> Very deficient	<input type="radio"/> Deficient	<input type="radio"/> Acceptable	<input type="radio"/> High	<input type="radio"/> Very High	<input type="radio"/>
Uses capital letters for titles and headings or to highlight important bits of text	<input type="radio"/> N/S	<input type="radio"/> Very deficient	<input type="radio"/> Deficient	<input type="radio"/> Acceptable	<input type="radio"/> High	<input type="radio"/> Very High	<input type="radio"/>
Avoids underlining when there are no links	<input type="radio"/> N/S	<input type="radio"/> Very deficient	<input type="radio"/> Deficient	<input type="radio"/> Acceptable	<input type="radio"/> High	<input type="radio"/> Very High	<input type="radio"/>
Font is legible and of a suitable size	<input type="radio"/> N/S	<input type="radio"/> Very deficient	<input type="radio"/> Deficient	<input type="radio"/> Acceptable	<input type="radio"/> High	<input type="radio"/> Very High	<input type="radio"/>
Colors and font types contribute information in themselves	<input type="radio"/> N/S	<input type="radio"/> Very deficient	<input type="radio"/> Deficient	<input type="radio"/> Acceptable	<input type="radio"/> High	<input type="radio"/> Very High	<input type="radio"/>
No spelling errors	<input type="radio"/> N/S	<input type="radio"/> Very deficient	<input type="radio"/> Deficient	<input type="radio"/> Acceptable	<input type="radio"/> High	<input type="radio"/> Very High	<input type="radio"/>
Images							
Clarify textual information	<input type="radio"/> N/S	<input type="radio"/> Very deficient	<input type="radio"/> Deficient	<input type="radio"/> Acceptable	<input type="radio"/> High	<input type="radio"/> Very High	<input type="radio"/>
Not superfluous	<input type="radio"/> N/S	<input type="radio"/> Very deficient	<input type="radio"/> Deficient	<input type="radio"/> Acceptable	<input type="radio"/> High	<input type="radio"/> Very High	<input type="radio"/>

HEODAR results



1 user has already completed the quiz at this time.

The results analysis yielded the following results:



Considering:

The top stars bar represents the average rating over 5 stars of the Learning Object (2.31 over 5).

The bottom stars bar represents the weighted value on the number of tutors who evaluated the Object, over 5 stars (0.26 over 5)

The percentage represents the number of teachers who evaluated the object in relation to all teachers in the course

Grade (with no percentage application) for **Psychopedagogical Category**: 2.93 over 5

Grade (with no percentage application) for **Didactic-Curricular Category**: 2.88 over 5

Grade (with no percentage application) for **Interface Design**: 1.56 over 5

Grade (with no percentage application) for **Navigation Design**: 1.33 over 5

HEODAR results



Weaknesses (Average minor than 1.5 over 5)

- Not superfluous: 1 over 5
- Justified and not used in excess: 0 over 5
- Do not take long to load: 0 over 5
- Avoids animations that are presented in one cycle without stopping: 0 over 5
- Uses multimedia justifiably, only when necessary: 0 over 5
- When loading time takes more than 2 seconds, this is indicated in parentheses: 0 over 5
- Uses sound only when necessary (optional for the user): 0 over 5
- Gives information on the sound file characteristics before loading (size, types of connection, etc.): 0 over 5
- Used justifiably, only when it can contribute something: 0 over 5
- Do not take long to load: 0 over 5
- Both image and audio are clear: 0 over 5

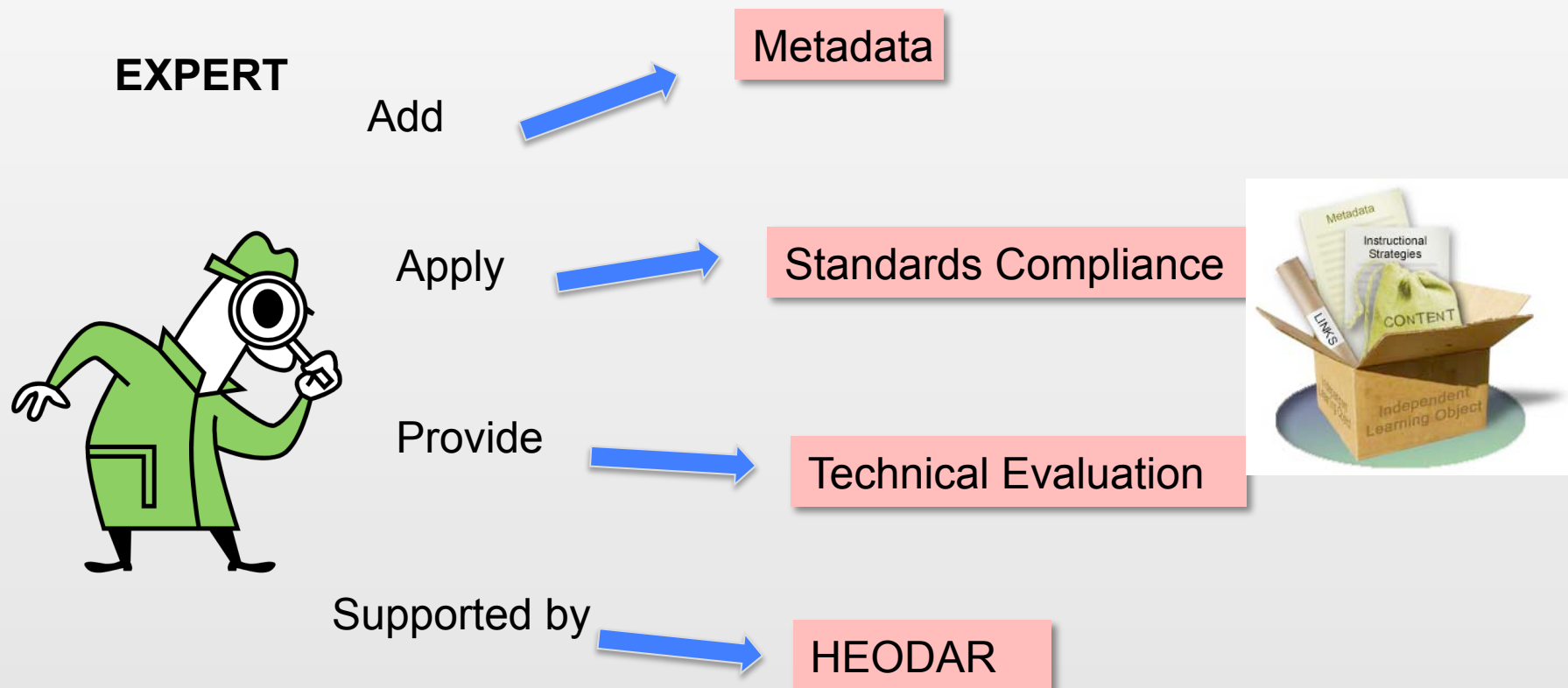
Strengths: (Average bigger than 4.5 over 5)

- Interactivity level: Promotes opportunities to interact with the LO in different ways: 5 over 5
- Present information in different formats (texts, audio, etc.): 5 over 5
- Permit interaction with the contents through links: 5 over 5

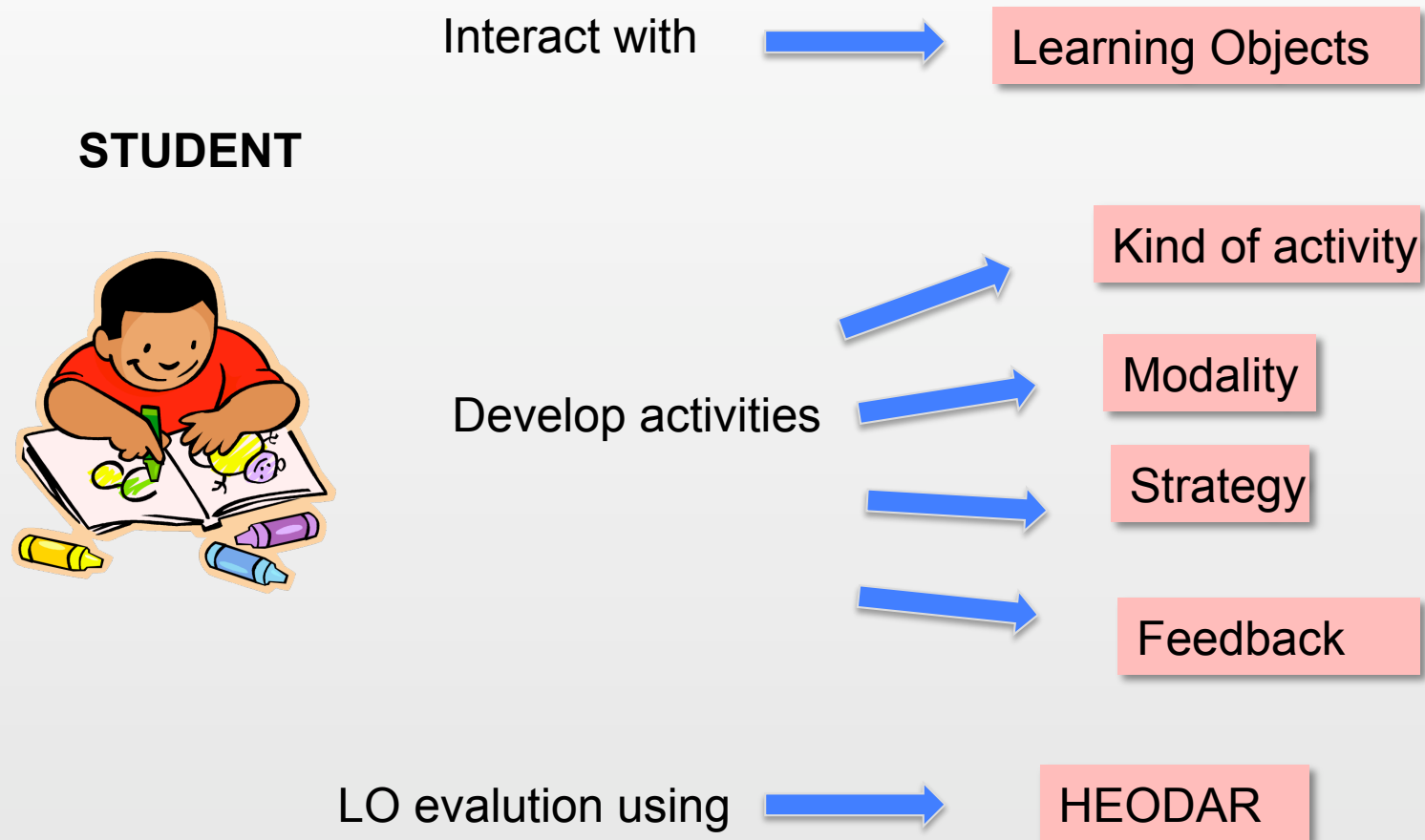
Input Evaluation

Professor provide a Normalized and Evaluated LO to the expert

An expert detect alternative LOs necessities in the context evaluation

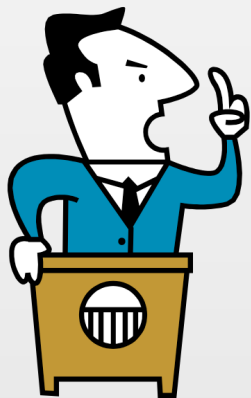


Process Evaluation



Product Evaluation

PROFESSOR



Analyze

Students Evaluation
(HEODAR)

Students process
activities

Collect **quantitative** and
qualitative LOs information to
improve their quality

Conclusions



Into context evaluation we suggest a proposal for LOs design to develop specific competence skills.

In order to promote LOs quality, HEODAR instrument aims to evaluate LOs into Moodle, taking into account pedagogical and technical criteria. Users are able to know immediately the specific LOs things that need to be improved

The “Input evaluation”, ensures that the LOs met with the interoperability and reusability characteristics

The LOs “Process” evaluation during and after the teaching process, can be useful to discuss the initial assessment made by experts.

The "Product" evaluation suggested aims to collect qualitative and quantitative information in order to improve the LOs quality



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