

Online Labs and E-learning Standards

This survey serves to gather your opinion about some characteristics of online laboratories, whether they are virtual, remote or hybrid.

Specifically, it focuses on the integration of online laboratories with virtual teaching platforms, also called Learning Management Systems (or LMS). LMS are known by all teachers and students as institutional Web platforms used by educational centers (universities, high schools, etc...) to support multiple teaching services and tools that are available to them.

***Obligatorio**

Integration of online laboratories in LMS

The integration of online laboratories in the LMS can allow, among other things, that students and teachers can access the online laboratory in a secure way in the same way they access the rest of the resources that are used in regular teaching: through the LMS.

This survey also aims to know your opinion about the integration of online laboratories in institutional LMS using e-learning standards and your knowledge about them.

1. Please indicate your consent to participate in this survey. *

Marca solo un óvalo.

☐ Yes

☐ No

Personal
Data and
Online
Laboratories

This section deals with collecting personal data from the respondent as well as the use of online laboratories, their participation in their creation and their preferences regarding the characteristics that the labs can offer.

2. Gender *

Marca solo un óvalo.

☐ Female

☐ Male

☐ I prefer not to say

3. Age *

Indicate the range where your age is:

Marca solo un óvalo.

☐ years < 30

☐ $30 \leq$ years < 40

☐ $40 \leq$ years < 50

☐ $50 \leq$ years < 60

☐ years $\geq$ 60

4. Organization *

Write the name of the Organization where you work (University, Institute, Center, etc.)

5. Use of online laboratories in teaching *

If you have ever used online laboratories to teach, indicate the modalities used

Selecciona todos los que correspondan.

☐ I have used Remote Laboratory in my teaching

☐ I have used Virtual Laboratory in my teaching

☐ I have used Hybrid Laboratory in my teaching

☐ I have not used Online Laboratory in my teaching

6. Creation of online laboratories in teaching *

Indicate the types of online educational laboratories in which, until now, you have participated in some way in their creation:

Selecciona todos los que correspondan.

☐ Remote Laboratory

☐ Virtual Laboratory

☐ Hybrid Laboratory

☐ I have not participated in the creation of online laboratories

7. Creation of New online laboratories in teaching currently *

If you are involved in planning or creating (individually or as a team) a new online teaching lab for future use, please indicate the types considered:

Selecciona todos los que correspondan.

- ☐ Remote Laboratory
- ☐ Virtual Laboratory
- ☐ Hybrid Laboratory
- ☐ I am not currently participating in the creation of new online laboratories

8. Desirable Characteristics *

Rate the importance to you of each of the following characteristics (requirements):

Marca solo un óvalo por fila.

[illegible]

Automatic
laboratory
evaluation

Clear lab
creation
guidelines

☐☐☐☐☐☐

Sharing,
compatibility
and use of
laboratories with
other
organizations

☐☐☐☐☐☐

Use of
standards for
the creation of
laboratories

☐☐☐☐☐☐

Standards for
integrating Online
Laboratories with
LMS

This section tries to collect information about your preferences and knowledge regarding the use of standards to achieve the integration of online laboratories in LMS

LTI Standard (Learning Tool Interoperability)

LTI standard (Learning Tool Interoperability) has been developed by IMS Global Learning Consortium (IMS).

LTI Web page: <https://www.imsglobal.org/activity/learning-tools-interoperability>

The main objective of LTI is the integration of rich learning applications (such as a laboratory or Tool according to LTI terminology) with learning platforms (such as an LMS or Tool consumer according to LTI terminology).

Example of using the LTI standard



11. What is your knowledge level of the LTI standard (Learning Tools Interoperability)? *

Marca solo un óvalo.

- ☐ I have not heard of this standard *Salta a la pregunta 14*
- ☐ I have heard of it, but I don't know *Salta a la pregunta 14*
- ☐ I know it and I know what it is for, but I did not use it *Salta a la pregunta 12*
- ☐ I used it, but not in online labs *Salta a la pregunta 12*
- ☐ I used it to create online labs *Salta a la pregunta 12*

LTI Standard

LTI Web page: <https://www.imsglobal.org/activity/learning-tools-interoperability>

compatibility and use
of laboratories with
other organizations

13. Rate, in your opinion, the importance of the LTI standard for the integration of an online laboratory in an LMS *

Marca solo un óvalo.

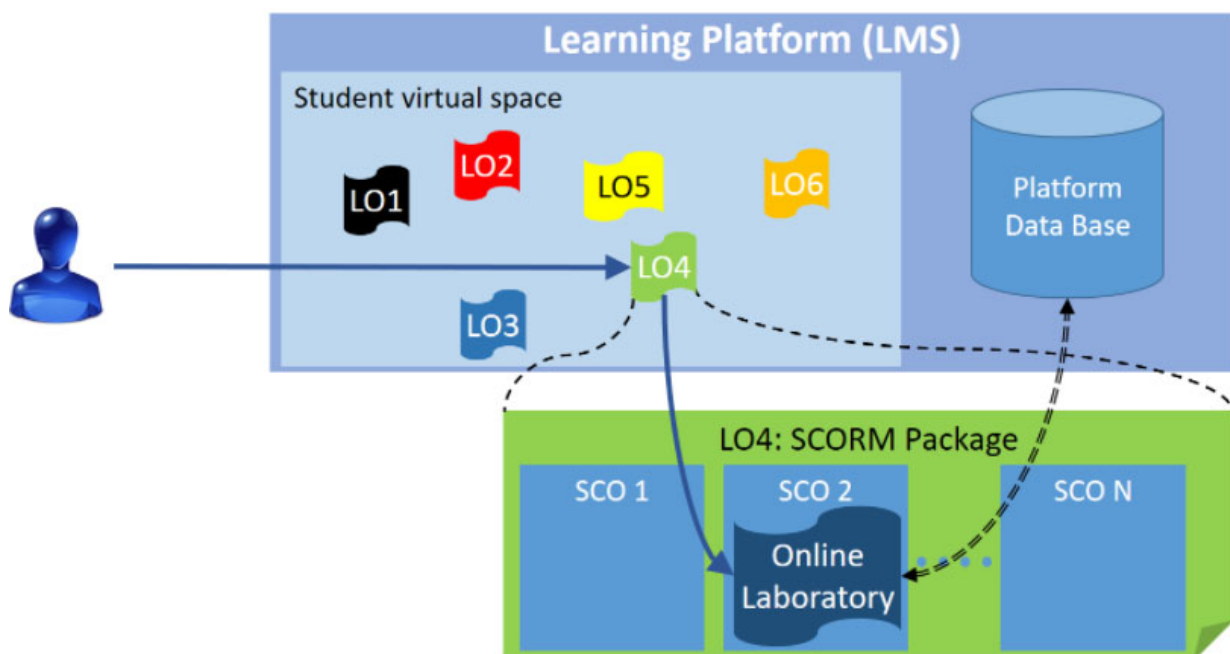
	1	2	3	4	5	
Unimportant	☐	☐	☐	☐	☐	Very important

SCORM Standard (Sharable Content Object Reference Model)

SCORM standard (Sharable Content Object Reference Model) is a specification made up of 3 sub-specifications created by the ADL (Advanced Distributed Learning) initiative of the Secretary of Defense of the United States of America. SCORM Web page: <https://adlnet.gov/projects/scorm/>

The main objective of SCORM is to define the creation of composite e-learning content (SCORM package according to SCORM terminology, which can include an online laboratory) that is located in a learning platform (such as an LMS) with which it can exchange data using a defined model.

Example of use of the SCORM standard



14. What is your knowledge level of the SCORM standard (Sharable Content Object Reference Model)? *

Marca solo un óvalo.

- ☐ I have not heard of this standard *Salta a la pregunta 17*
- ☐ I have heard of it, but I don't know *Salta a la pregunta 17*
- ☐ I know it and I know what it is for, but I did not use it *Salta a la pregunta 18*
- ☐ I used it, but not in online labs *Salta a la pregunta 18*
- ☐ I used it to create online labs *Salta a la pregunta 18*

SCORM Standard

SCORM Web page: <https://adlnet.gov/projects/scorm/>

15. Rate the help that the use of the SCORM standard can provide in order to achieve each of the following characteristics in an online laboratory (desirable requirements): *

[illegible]

compatibility and use
of laboratories with
other organizations

16. Rate, in your opinion, the importance of the SCORM standard for the integration of an online laboratory in an LMS *

Marca solo un óvalo.

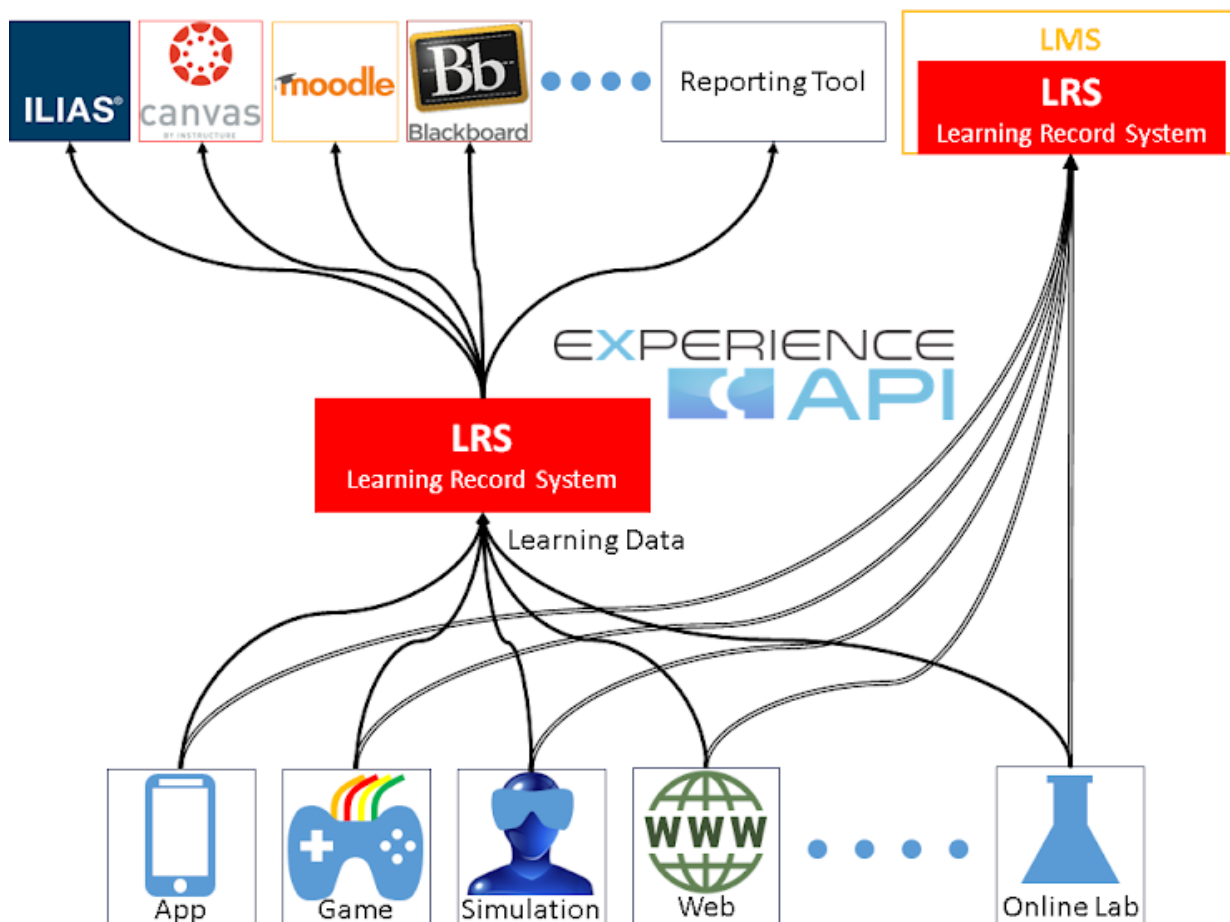
	1	2	3	4	5	
Unimportant	☐	☐	☐	☐	☐	Very important

xAPI
Standard
(Experience
API)

xAPI standard (eXperience API or Tin Can API) was initially created by ADL (Advanced Distributed Learning), from the Secretary of Defense of the United States of America and is currently being developed by the IEEE 92741.1 group. xAPI Web pages: <https://adlnet.gov/projects/xapi/> <https://sagroups.ieee.org/9274-1-1/>

The main objective of xAPI is to establish two-way communications between learning content (such as online labs) and learning platforms (such as LMS) to record and monitor all types of learning experiences using an LRS (Learning Record System) that can be integrated into the LMS itself or be external to it.

Example of using the xAPI standard



17. What is your knowledge level of the xAPI standard (Experience API)? *

Marca solo un óvalo.

- ☐ I have not heard of this standard *Salta a la pregunta 18*
- ☐ I have heard of it, but I don't know *Salta a la pregunta 18*
- ☐ I know it and I know what it is for, but I did not use it *Salta a la pregunta 20*
- ☐ I used it, but not in online labs *Salta a la pregunta 20*
- ☐ I used it to create online labs *Salta a la pregunta 20*

xAPI
Standard

xAPI Web pages: <https://adlnet.gov/projects/xapi/>
<https://sagroups.ieee.org/9274-1-1/>

18. Rate the help that the use of the xAPI standard can provide in order to achieve each of the following characteristics in an online laboratory (desirable requirements): *

[illegible]

compatibility and use
of laboratories with
other organizations

19. Rate, in your opinion, the importance of the xAPI standard for the integration of an online laboratory in an LMS *

Marca solo un óvalo.

	1	2	3	4	5	
Unimportant	☐	☐	☐	☐	☐	Very important

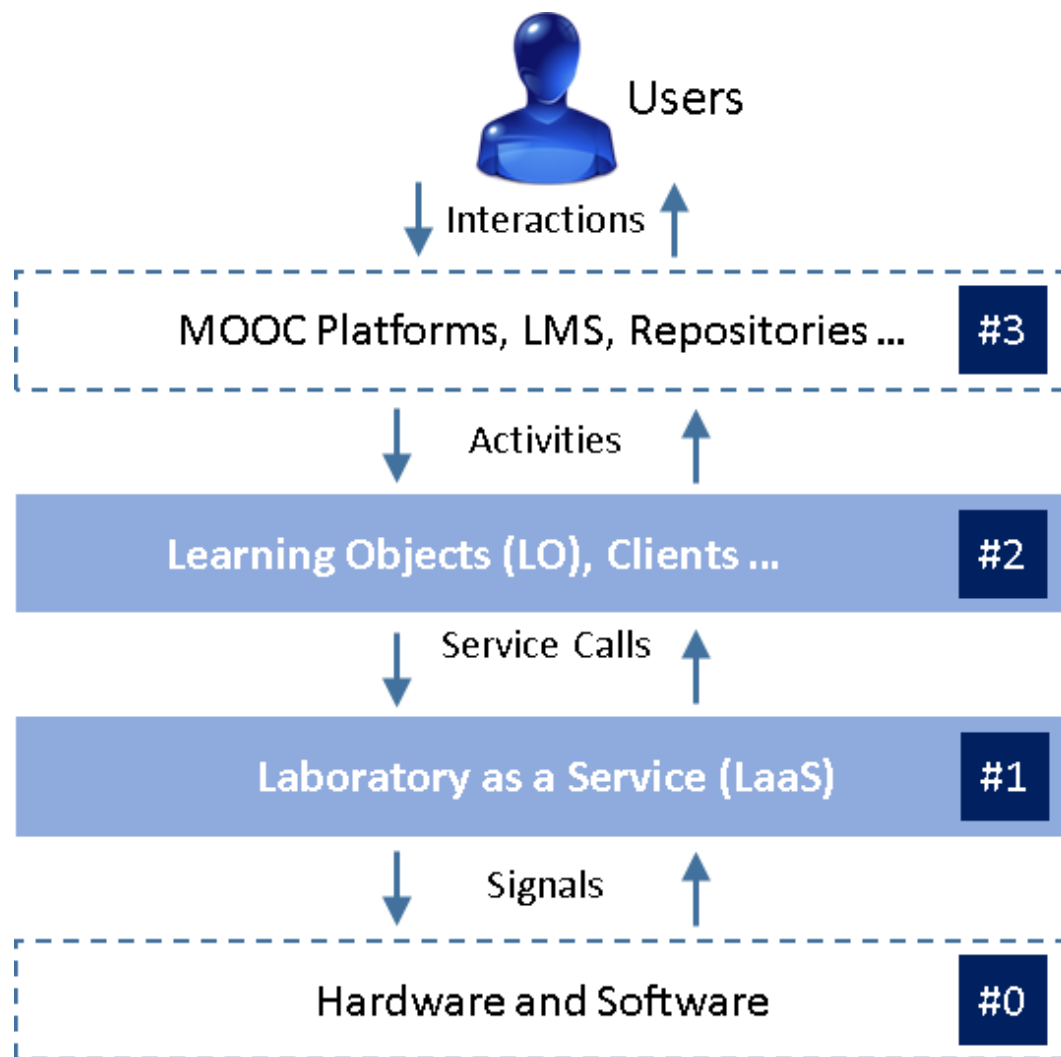
IEEE1876
Standard
(IEEE
Standard for
Networked
Smart
Learning
Objects for
Online
Laboratories)

The IEEE 1876-2019 standard (IEEE Standard for Networked Smart Learning Objects for Online Laboratories) has been developed by the IEEE (Institute of Electrical and Electronics Engineers).

IEEE1876 Web page: <https://standards.ieee.org/standard/1876-2019.html>

The main objective of IEEE 1876-2019 is to establish relationships between the components used in an online laboratory and learning environments (LMS) in order to facilitate the design, implementation and use of laboratory practices with educational objectives in online laboratories, as well as as, its integration in online learning environments and repositories adjusting to a model of 4 layers or conceptual levels.

4-layer model of the IEEE1876 standard



20. What is your knowledge level of the IEEE1876 standard (IEEE Standard for Networked Smart Learning Objects for Online Laboratories)? *

Marca solo un óvalo.

- ☐ I have not heard of this standard *Salta a la pregunta 21*
- ☐ I have heard of it, but I don't know *Salta a la pregunta 21*
- ☐ I know it and I know what it is for, but I did not use it *Salta a la pregunta 23*
- ☐ I used it, but not in online labs *Salta a la pregunta 23*
- ☐ I used it to create online labs *Salta a la pregunta 23*

21. Rate the help that the use of the IEEE1876 standard can provide in order to achieve each of the following characteristics in an online laboratory (desirable requirements): *

Marca solo un óvalo por fila.

[illegible]

compatibility and use
of laboratories with
other organizations

22. Rate, in your opinion, the importance of the IEEE1876 standard for the integration of an online laboratory in an LMS *

Marca solo un óvalo.

	1	2	3	4	5	
Unimportant	☐	☐	☐	☐	☐	Very important

Contact

Next, if you wish, you can tell us your email address if you want us to send you information about the results of the survey and a link to the results of the work.

23. Enter your email address

Este contenido no ha sido creado ni aprobado por Google.

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