

# Metadata of the dataset “*University Learning Management System xAPI data for the ILEDA project*”

López-Pernas, Sonsoles (University of Eastern Finland)  
Miguel Á., Conde (University of Leon)  
Raspopovic Milic, Miroslava (Belgrade Metropolitan University)  
Georgiev, Atanas (Sofia University "St. Kliment Ohridski")  
Jovic, Jovana (Belgrade Metropolitan University)  
Rodríguez-Sedano, Francisco Jesús (University of Leon)  
Saqr, Mohammed (University of Eastern Finland)

## Description

Anonymized data in xAPI format collected from learning management systems (Moodle and LAMS) for the project “Improving online and blended learning with educational data analytics (ILEDAs)” (2021-1-BG01-KA220-HED-000031121): <https://ileda.eu/ileda-project>. The dataset contains 306,741 records of 829 individuals participating in eight different blended learning courses following either a flipped classroom methodology or a project-based learning methodology from four universities: University of Eastern Finland (Finland), University of León (Spain), Belgrade Metropolitan University (Serbia) and Sofia University (Bulgaria).

## Data fields

**Institution:** Acronym of the institution where the data were collected.

Institution	Full name of the institution	Country	n	%
BMU	Belgrade Metropolitan University	Serbia	14,598	4.76%
SU	Sofia University	Bulgaria	42,959	14.00%
UEF	University of Eastern Finland	Finland	153,572	50.07%
UL	University of León	Spain	95,612	31.17%

**Course:** Name of the course for which the data were generated. The courses used either a flipped classroom (FC) or project-based learning (PBL) implementation.

Course	Institution	Implementation	n	%
Advanced Data Management Systems	UEF	FC	18,463	6.02%
Computer Architecture	UL	FC	74,867	24.41%
Computer networks	BMU	FC	5,769	1.88%
Computer organization	BMU	PBL	8,829	2.88%
E-Learning	SU	FC	27,097	8.83%
Human Computer Interaction	SU	PBL	15,862	5.17%
Human Factors of Interactive Technology	UEF	PBL	135,109	44.05%
Web applications	UL	PBL	20,745	6.76%

**actor.id:** Unique identifier of each student (829 distinct values).

**verb.id:** URI of the action performed by a student on the LMS, following xAPI nomenclature

**verb.display:** Name of the action performed by a student on the LMS.

verb.id	verb.display	n	%
http://id.tincanapi.com/verb/viewed	viewed	231,148	75.36%
http://adlnet.gov/expapi/verbs/answered	answered	35,869	11.69%
http://adlnet.gov/expapi/verbs/completed	completed	18,707	6.10%
http://activitystrea.ms/schema/1.0/receive	received	7,071	2.31%
http://adlnet.gov/expapi/verbs/scored	attained grade for	6,494	2.12%
http://activitystrea.ms/schema/1.0/start	started	4,868	1.59%
http://activitystrea.ms/schema/1.0/submit	submitted	1,481	0.48%
http://activitystrea.ms/schema/1.0/create	created	930	0.30%
http://activitystrea.ms/schema/1.0/join	joined	137	0.04%
http://activitystrea.ms/schema/1.0/leave	left	36	0.01%

**timestamp:** Time in which the record was generated.

Course	From	To
Advanced Data Management Systems	2023-02-01 05:34:21	2023-07-07 18:55:47
Computer Architecture	2022-08-17 22:44:48	2023-08-10 06:51:25
Computer networks	2023-02-26 17:05:02	2023-06-29 21:41:24
Computer organization	2023-02-27 22:40:41	2023-06-24 15:14:38
E-Learning	2023-02-19 09:05:40	2023-05-23 23:45:43
Human Computer Interaction	2023-01-27 18:44:25	2023-05-24 06:33:53
Human Factors of Interactive Technology	2023-03-14 12:17:13	2023-07-07 21:54:10
Web applications	2022-08-09 09:34:44	2023-08-11 07:51:20

**object.id:** Unique identifier of the LMS resource associated with the record (18,896 distinct values).

**object.definition.type:** Type of LMS resource associated with the record.

object.definition.type	n	%
http://id.tincanapi.com/activitytype/lms/course	103,252	33.66%
http://adlnet.gov/expapi/activities/cmi.interaction	35,869	11.69%
http://id.tincanapi.com/activitytype/resource	30,853	10.06%
http://id.tincanapi.com/activitytype/discussion	25,170	8.21%
http://id.tincanapi.com/activitytype/lms/module	24,338	7.93%
http://adlnet.gov/expapi/activities/assessment	23,049	7.51%
http://xapi.jisc.ac.uk/activities/quiz	22,204	7.24%
http://adlnet.gov/expapi/activities/attempt	14,749	4.81%
http://id.tincanapi.com/activitytype/forum-topic	11,770	3.84%
http://adlnet.gov/expapi/activities/link	10,307	3.36%
https://w3id.org/xapi/acrossx/activities/page	2,564	0.84%
http://activitystrea.ms/schema/1.0/review	2,322	0.76%
http://adlnet.gov/expapi/activities/meeting	200	0.07%
http://id.tincanapi.com/activitytype/survey	88	0.03%
http://adlnet.gov/expapi/activities/lesson	6	0.00%

**object.definition.name:** Name of the LMS resource associated with the record (1,289 distinct values).

**result.score.scaled**: Score (0-1) obtained if the record was associated with a grade.

**result.success**: Binary score (true for passed, false for failed).

**result.completion**: Whether the record resulted in a completion score (true) or not (false).

**context.taxonomy**: LMS module in which the record took place (172 distinct values).