

application: pslcdatashop.org
 project info: pslcdatashop.org/about
 email: datashop-help@lists.andrew.cmu.edu
 phone: 412 268 2196

indicates a public project
 Indicates papers are attached

Sample Selector

- add a new sample
- edit an existing sample
- indicates a shared sample
- delete a sample

Columns for creating samples of data

Condition Name	Tutor Transaction
Condition Type	Time Stamp
Dataset Level Name	Attempt Number
Dataset Level Title	Student Response Type
Problem Name	Tutor Response Type
Problem Description	Student Response Subtype
School Name	Tutor Response Subtype
Student Anon ID	

Help ▶ See help for the current page

Samples Create and edit samples, or groups of data you compare across—they're not "samples" in the statistical sense, but more like filters

deselect all

My Samples

Shared Samples

All Data Expand or collapse a navigation section

Lawn Sprinkler

Performance Profiler Options specific to each page you're viewing

KC Models View the report in terms of a specific KC model. Some reports allow you to specify a secondary model

Primary Options specific to each page you're viewing

Knowledge Components Choose which KCs to include in the current report. You can also save a subset of KCs as a set for use later and share it.

14/14 selected.

Students Choose which students to include in the current report.

59/59 selected.

Problems Choose which problems to include in the current report.

40/40 selected.

Glossary

Transaction. An interaction between the student and the tutoring system. Each hint request, incorrect attempt, or correct attempt is a transaction.

Step. An observable part of the solution to a problem, which can involve one or more transactions.

Problem. A task for a student to perform that typically involves multiple steps.

KC (Knowledge Component). A piece of information that can be used to accomplish tasks, perhaps along with other knowledge components.

KC Model. A list of mappings between each step and one or more knowledge components; also known as a Transfer Model or a Skill Model.

<http://pslcdatashop.org/help?page=terms>

Opportunity. A chance for a student to demonstrate whether he or she has learned a given knowledge component. Exists each time a step is present with the associated knowledge component.

Observation. An observation is a group of transactions for a particular student working on a particular step within an instance of a problem (a problem view)

Error Rate. The percentage of students that asked for a hint or were incorrect on their first attempt.

KC Modeling (Dataset Info > KC Models)

Do you want to create or improve a cognitive model for a dataset?

In DataShop, each step can map to one or more knowledge components. From the KC Models page, you can compare existing KC models, export an existing model, or create and import a new KC model.

On the KC Models page, each model is described by:

- number of KCs
- number of observations labeled with KCs
- measures of goodness of fit for the model: AIC, BIC, and Cross Validation RMSE

Export a model and use it as the basis for a better one

KC Models [Export](#) [Import](#)

Sort by

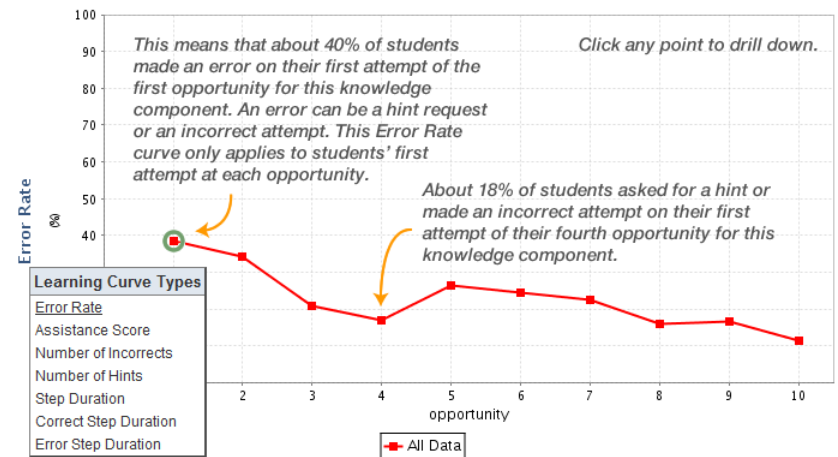
Statistical measures of goodness of fit

Model Name	KCs	Observations with KCs	AIC	BIC	Cross Validation*			Observations (unstratified)
					RMSE (student stratified)	RMSE (item stratified)	RMSE (unstratified)	
<input type="checkbox"/> LFA_AIC_Model0_v2	21	4327	4889.86	5482.5	0.48314	0.433185	0.433809	4326
<input type="checkbox"/> LFA_AIC_Model1_v2	20	4327	4889.96	5469.85	0.484874	0.435529	0.437643	4326
<input type="checkbox"/> LFASearchAICModel1	21	4327	4894.18	5486.81	0.488452	0.437255	0.43377	4326
<input type="checkbox"/> LFASearchAICModel0	22	4327	4896.08	5501.46	0.485673	0.436256	0.437573	4326
<input type="checkbox"/> LFA_BIC_Model1_v2	8	4327	4933.49	5360.44	0.486137	0.437578	0.438248	4326
<input type="checkbox"/> LFASearchModel0	7	4327	4944.75	5358.96	0.487208	0.437305	0.437406	4326

Show all KCs in this model

Learning Curves

How can I visualize student performance over time?



[show graph info](#)
[show point info](#)
[hide observation table](#)

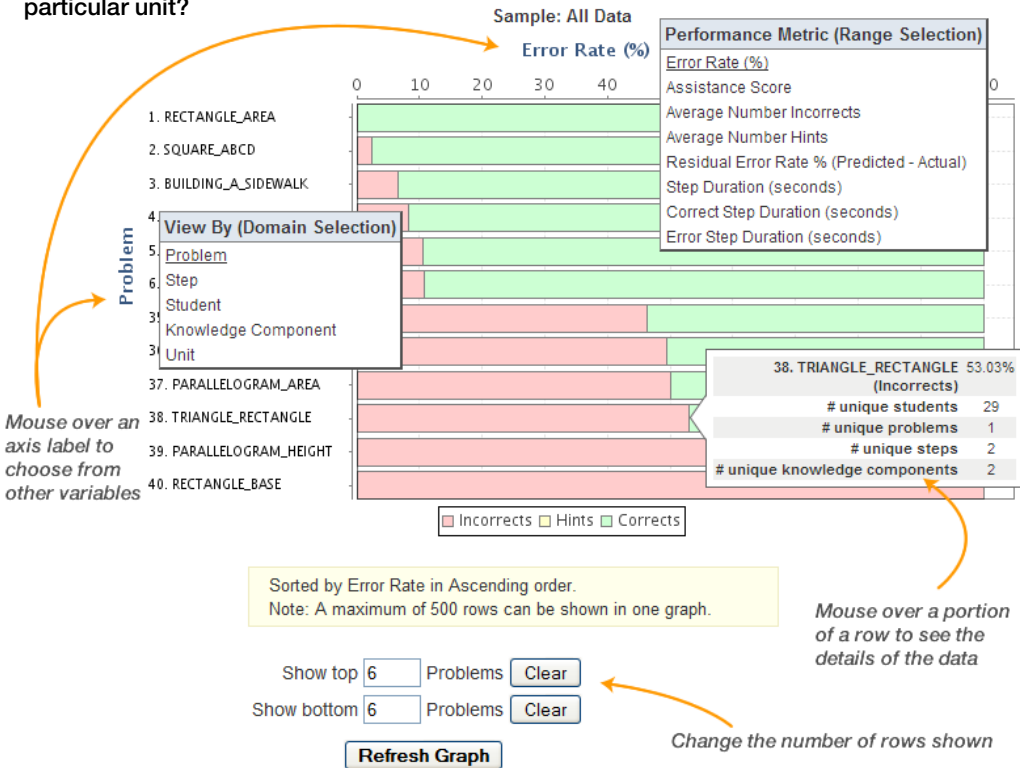
Mouse over the y-axis label to choose from other ways of visualizing the data

The observation table shows the number of students who attempted each opportunity. Later opportunities show fewer observations because some students didn't get to all problems in the curriculum.

All Data	
Opportunity Number	1 2 3 4 5 6 7 8 9 10
Number of Observations	91 91 91 88 87 86 85 82 79 78

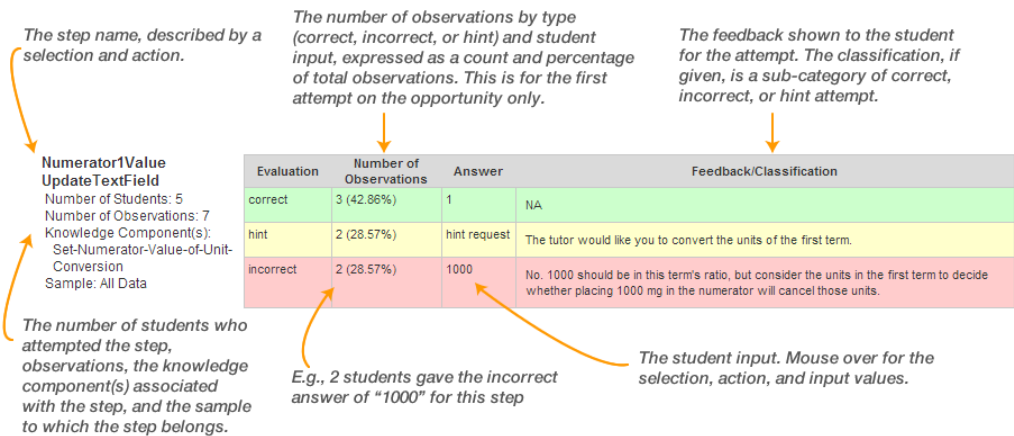
Performance Profiler

What was the hardest problem for students? How many students worked in a particular unit?



Error Report

How can I explore the errors students made and drill down to see actual responses and feedback?



Web Services

API: <http://pslccdatashop.org/api/>

How can I programmatically retrieve data from DataShop?

Base URL: <https://pslccdatashop.web.cmu.edu>

Get dataset metadata

</services/datasets/{?id}>
access = all, editable, or viewable
verbose = true or false

Add custom field

</services/datasets/{id}/customfields/add>
Post an XML document with *name*, *description*, *type*, and *level* elements describing custom field

Get sample metadata

</services/datasets/{id}/samples/{?id}>
access = editable or viewable
verbose = true or false

Get custom field metadata

</services/datasets/{id}/customfields/{?id}>
mine = true or false

Get transactions

</services/datasets/{id}/samples/{id}/transactions>
zip = true or false
cols = comma-delimited list of columns; see Web Services Export Columns
cfs = all, none, or comma-delimited list of IDs
headers = true or false
limit = a number between 1 and 5,000
offset = a number between 0 and the number of rows in the dataset

Set custom field

</services/datasets/{id}/customfields/{id}/customfields/{id}/set>
Post a tab-delimited document with two columns: *Transaction Id* and *value*

Get student-step records

</services/datasets/{id}/samples/{id}/steps>
zip = true or false
cols = comma-delimited list of columns
kcms = all or none
headers = true or false
limit = a number between 1 and 5,000
offset = a number between 0 and the number of rows in the dataset

Delete custom field

</services/datasets/{id}/customfields/{id}/delete>
No parameters

Import

<http://pslccdatashop.org/help?page=import>

- Log data directly to DataShop from an educational application
- Import via the *Upload a dataset* page

Export

<http://pslccdatashop.org/help?page=export>

Location/Type	Description
Export > By Transaction (or Web Services)	Data at the finest level of granularity possible—the level at which the data was logged.
Export > By Student-Step (or Web Services)	Aggregates data by student-step: each row represents a student attempting to complete a step.
Export > By Student-Problem	Aggregates data by student and problem, describing unique problems students have engaged in.
Dataset Info > Problem Breakdown	Lists all unique problems and steps in the curriculum
Dataset Info > KC Models	Lists and describes all unique steps in the curriculum and how various KC models are mapped to them
Learning Curve > Model Values	Describes how well the AFM statistical model fits the data and how well it might generalize to another dataset

Web Application Export Columns

<http://pslclatashop.org/help?page=export>

Transaction *Export > By Transaction.* Data at the finest level of granularity possible—the level at which it was logged.

Row	Sample Name	Transaction Id	Anon Student Id	Session Id	Time	Time Zone	Duration (sec)	Student Response Type	Student Response Subtype	Tutor Response Type	Tutor Response Subtype	Level * §	Problem Name	Problem View	Problem Start Time	
Step Name	Attempt At Step	Outcome	Selection *	Action *	Input *	Feedback Text	Feedback Classification	Help Level	Total Num Hints	Condition Name	Condition Type	KC §	KC Category §	School	Class	CF * §

* Knowledge Component * Custom Field

Student-Step *Export > By Student-Step.* Data aggregated by student-step: each row represents a student attempting to complete a step.

Row	Sample	Anon Student Id	Problem Hierarchy	Problem Name	Problem View	Step Name	Step Start Time	First Transaction Time	Correct Transaction Time	Step End Time
Step Duration (sec)	Correct Step Duration (sec)	Error Step Duration (sec)	First Attempt	Incorrects	Hints	Corrects	Condition	KC †§	Opportunity †§	Predicted Error Rate †§

*

Student-Problem *Export > By Student-Problem.* Data aggregated by student and problem, describing unique problems students have engaged in.

Row	Sample	Anon Student Id	Problem Hierarchy	Problem Name	Problem View	Problem Start Time	Problem End Time	Latency (sec)	Steps Missing Start Times	Hints
Incorrects	Corrects	Avg Corrects	Steps	Avg Assistance Score	Correct First Attempts	Condition	KCs §	Steps Without KCs §	KC List §	

KC Model *Dataset Info > KC Models.* Lists and describes all unique steps in the curriculum and how various KC models are mapped to them.

Step ID	Problem Hierarchy	Problem Name	Max Problem View	Step Name	Avg Incorrects	Avg Hints	Avg Corrects	% First Attempt Incorrects	% First Attempt Hints	% First Attempt Corrects
Avg Step Duration (sec)	Avg Correct Step Duration (sec)	Avg Error Step Duration (sec)	Total Students	Total Opportunities	KC * §					

Problem Breakdown *Dataset Info > Problem Breakdown.*
Lists all unique problems and steps in the curriculum.

Row	Problem Hierarchy	Problem Name	Step Name
-----	-------------------	--------------	-----------

* Column or column set may appear more than once.

§ Column name ends with (...)—e.g., “KC (MyModelName)”

† Multiple KCs on a step are delimited with two tildes (“~~”)

Dataset Import File Columns

<http://pslcdatashop.org/about/importverify.html>

Anon Student Id	Session Id	Time	Time Zone	Student Response Type	Student Response Subtype	Tutor Response Type	Tutor Response Subtype	Level * §	Problem Name	Problem View	Problem Start Time	Step Name †	Outcome
Selection † *	Action † *	Input *	Feedback Text	Feedback Classification	Help Level	Total Num Hints	Condition Name	Condition Type	KC §	KC Category §	School	Class	CF * §

required column
 required for learning curves
 * Knowledge Component
 † Custom Field

Web Services Export Columns

Transaction

Request

<http://pslcdatashop.org/about/webservices.html>

row	tx_id	anon_student_id	session_id	time	time_zone	duration	student_response_type	student_response_subtype	tutor_response_type	tutor_response_subtype						
problem_hierarchy	problem_name	problem_view	problem_start_time	step_name	attempt_at_step	outcome	selection	action	input	feedback	help_level	total_num_hints	condition	kcs	school	class

Response

Row	Transaction Id	Anon Student Id	Session Id	Time	Time Zone	Duration (sec)	Student Response Type	Student Response Subtype	Tutor Response Type	Tutor Response Subtype	Problem Hierarchy	Problem Name	Problem View	Problem Start Time	Step Name
Attempt At Step	Outcome	Selection *	Action *	Input *	Feedback Text	Feedback Classification	Help Level	Total Num Hints	Condition Name	Condition Type	KC §	KC Category §	School	Class	CF * §

Web services transaction format is almost the same as the web application's transaction format except the "Sample Name" column is omitted and the problem hierarchy appears in a single column.

Student-Step

Request

row	anon_student_id	problem_hierarchy	problem_name	problem_view	step_name	step_start_time	first_transaction_time	correct_transaction_time	step_end_time
step_duration	correct_step_duration	error_step_duration	first_attempt	incorrects	hints	corrects	condition	kcms	

Response

Row	Anon Student Id	Problem Hierarchy	Problem Name	Problem View	Step Name	Step Start Time	First Transaction Time	Correct Transaction Time	Step End Time	
Step Duration (sec)	Correct Step Duration (sec)	Error Step Duration (sec)	First Attempt	Incorrects	Hints	Corrects	Condition	KC ‡§	Opportunity ‡§	Predicted Error Rate ‡§

* Column or column set may appear more than once
 § Column name ends with (...)—e.g., "KC (MyModelName)"

‡ Multiple KCs on a step are delimited with two tildes ("~~")
 † At least one of Step Name, Selection, or Action is required for each row