

application: [pslccdatashop.org](http://pslccdatashop.org)  
 project info: [pslccdatashop.org/about](http://pslccdatashop.org/about)  
 email: [datashop-help@lists.andrew.cmu.edu](mailto: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
Student Anon ID	Subtype

**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 **Area-Textbook**

**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**

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

**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.

**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

**Model name** **KC Models**  
Sorted by BIC value, then name.

**Textbook**  
logged with dataset  
mapping type: correct-transaction-to-kc  
model fit values:

AIC	BIC	Cross Validation RMSE*
5167.18	5709.81	0.406018

[show model details](#)

**12 KCs**  
status: ready to use  
5104 observations labeled with KCs  
5104 observations used in cross validation

[export](#)

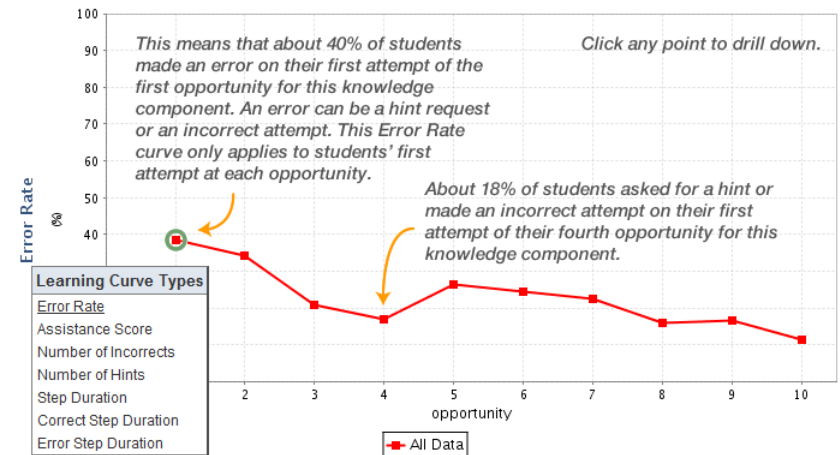
Export this model and use it as the basis for a better one

Statistical measures of goodness of fit

See KCs in this model

**Learning Curves**

How can I visualize student performance over time?



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

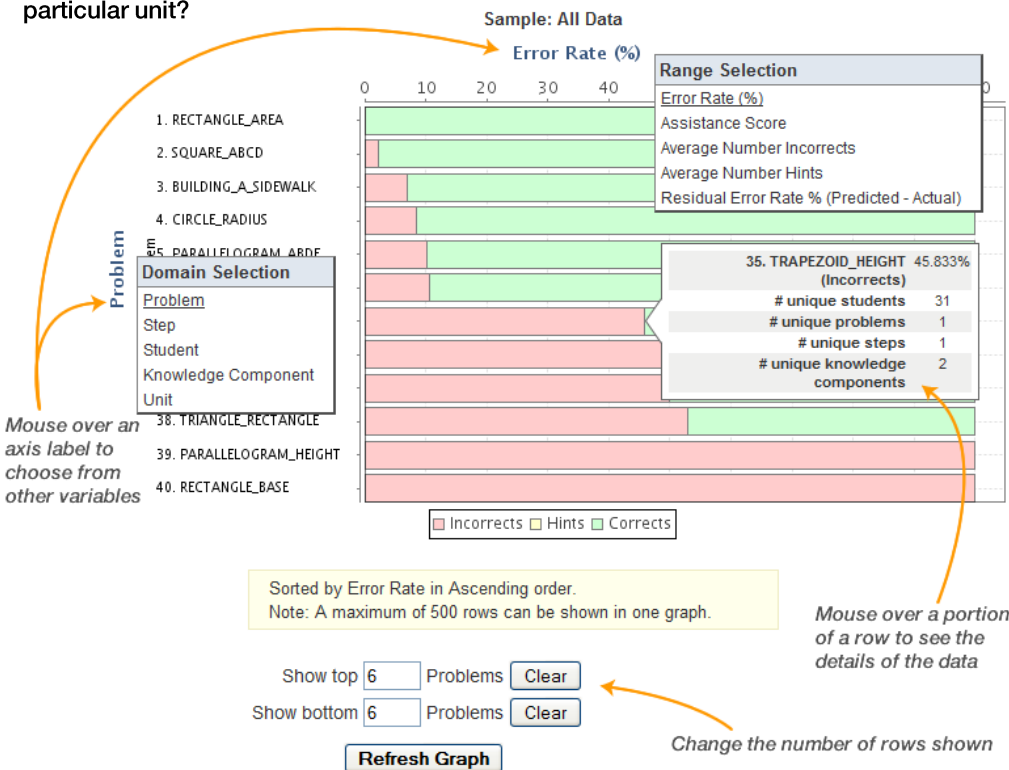
Mouse over the y-axis label to choose from other ways of visualizing the data

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

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.

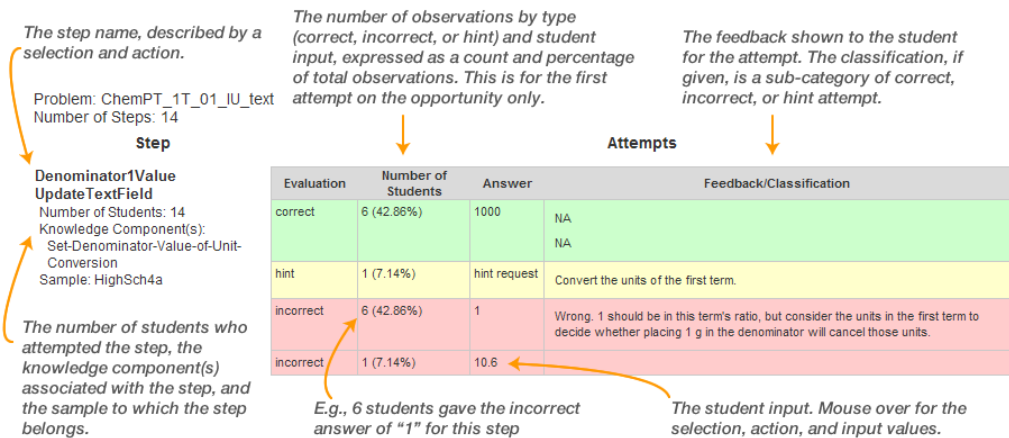
## Performance Profiler

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?

Get dataset metadata

<https://pslccdatashop.web.cmu.edu/services/datasets/{?id}>  
access = all, editable, or viewable  
verbose = true or false

Get sample metadata

<https://pslccdatashop.web.cmu.edu/services/datasets/{id}/samples/{?id}>  
access = editable or viewable  
verbose = true or false

Get transactions

<https://pslccdatashop.web.cmu.edu/services/datasets/{id}/{?samples/id}/transactions>  
zip = true or false  
cols = comma-delimited list of columns  
cfs = 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

Get student-step records

<https://pslccdatashop.web.cmu.edu/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

## Import

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

- Log data directly to DataShop from an educational application
- Import manually by DataShop team

## 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	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	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	Knowledge Component†	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 Correct	Steps	Avg Assistance Score	Correct First Attempts	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 Model*					

**Problem Breakdown** *Dataset Info > Problem Breakdown.*

Lists all unique problems and steps in the curriculum.

Row	Problem Hierarchy	Problem Name	Step Name
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\* Column or column set may appear more than once.

† Will show additional rows if more than one KC or student is associated with a step.

## Dataset Import File Columns

<http://pslclatashop.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	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      \* Knowledge Component      \* Knowledge Component

■ required column      Custom Field

## Web Services Export Columns

### Transaction

#### Request

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

row	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	step_name	attempt_at_step	outcome	selection	action	input	feedback	help_level	total_num_hints	condition	kcs	school	class

#### Response

Row	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	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‡

\* Knowledge Component      \* Knowledge Component      \* Knowledge Component

\* Column or column set may appear more than once.

† Will show additional rows if more than one student is associated with a step.

‡ Multiple KCs on a step are contained in a single value and delimited with two tildes ("~~"), resulting in a single row, which is different than the web application's student-step format.