

Student facing learning analytics

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Connected Intelligence Centre

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do you really have all the data?



who gets LA at your institution?



who gets LA at your institution?

Course Activity Overview

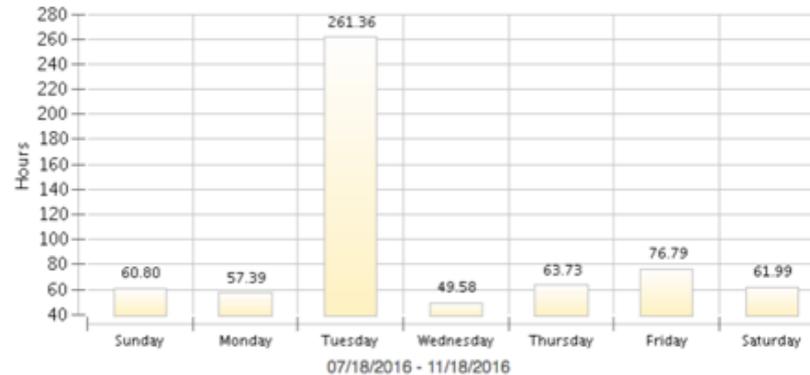
Course Name Operations Research 3
Course ID MXB334_16ee2
Number of Students 13
Number of Users 16
Date Range 07/18/2016 - 11/18/2016

Report Options

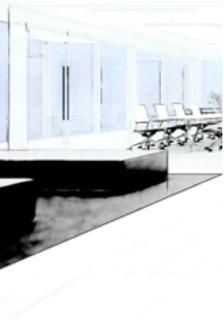
Activity is shown for enrolled users only.

Course Overview

User Activity By Day



Total Time in Course 631.65
Avg Time Per User 39.48



we should give students access to rich LA

In principle this should help to promote:

- *learning to learn more effectively*
- *metacognition and reflection*
- *interpretation and sensemaking*
- *data literacy*

And ethically... is it reasonable not to give students access to the data that they themselves generate?

ID14-3821: ENABLING CONNECTED LEARNING VIA OPEN SOURCE ANALYTICS IN THE WILD: LEARNING ANALYTICS BEYOND THE LMS

This project is supported by the Australian Government's office for learning and teaching

QUEENSLAND UNIVERSITY OF TECHNOLOGY:

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Shane Dawson, Dragan Gašević (Uni of Edinburgh)

UNIVERSITY OF TECHNOLOGY SYDNEY

Simon Buckingham Shum (and now Kirsty Kitto!)

UNIVERSITY OF SYDNEY

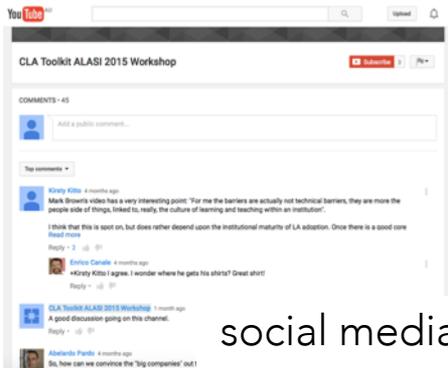
Abelardo Pardo

UNIVERSITY OF TEXAS (ARLINGTON)

George Siemens



the connected learning analytics toolkit



social media



scraping

Learning
Record Store



xAPI



analysis

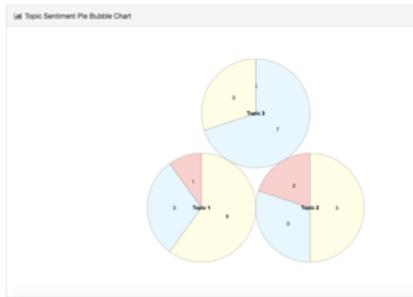
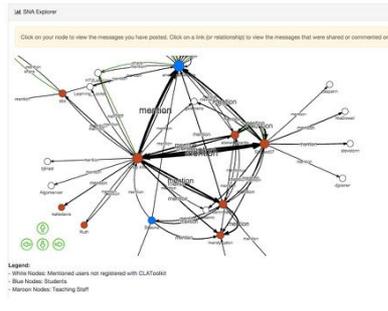
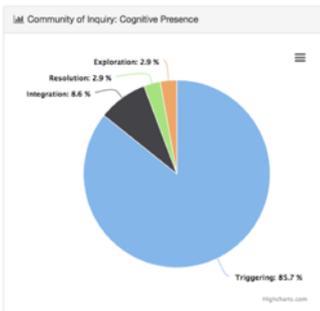
```
330 class TOPICNODEView(DefaultMixin, APView):
331
332     def get(self, request, *args, **kwargs):
333
334         course_code = request.GET.get('course_code', None)
335         platform = request.GET.get('platform', None)
336         start_date = request.GET.get('start_date', None)
337         end_date = request.GET.get('end_date', None)
338         num_topics = int(request.GET.get('num_topics', None))
339
340         result = json.loads(get_LMSVIS_250N(platform, num_topics, count))
341         response = Response(result, status=status.HTTP_200_OK)
342         return response
343
344 class MLCCLASSIFY(DefaultMixin, APView):
345
346     def get(self, request, *args, **kwargs):
347
348         course_code = request.GET.get('course_code', None)
349         platform = request.GET.get('platform', None)
350
351         result = classify(course_code, platform)
352         response = Response(result, status=status.HTTP_200_OK)
353         return response
354
355 class MLTRAIN(DefaultMixin, APView):
356
357     def get(self, request, *args, **kwargs):
```

learning analytics

students

academics

admin & developers



LRS List

Title	Description	User #	Created	✓	✗
Kirsty's LRS		1	2015-09-11 00:05	✓	✗
Mandy's LRS		1	2015-05-11 23:02:19	✓	✗
James's LRS		1	2015-05-11 23:02:35	✓	✗
Alexandre's LRS		1	2015-05-11 23:03:00	✓	✗
Shawn's LRS		1	2015-05-11 23:03:49	✓	✗
Grace's LRS		1	2015-05-11 23:04:23	✓	✗
Zak's LRS		1	2015-05-11 23:04:49	✓	✗
Sam's LRS		1	2015-05-11 23:05:00	✓	✗
Simon's LRS		1	2015-05-11 23:05:35	✓	✗
Alexandre's LRS		1	2015-05-11 23:02:10	✓	✗

data interoperability is essential in this project

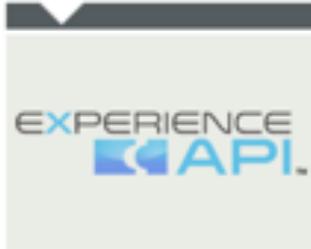


ABOUT RESEARCH PORTFOLIO COLLABORATION CONTACT NEWS Q



xAPI

Home / Research / Performance Tracking & Analysis / Xapi



The xAPI Overview

Broadly defined, the Experience API (xAPI) lets applications share data about human performance. More precisely, xAPI lets you capture (big) data on human performance, along with associated instructional content or performance context information. xAPI applies human (and machine) readable "activity streams" to tracking data and provides sub-APIs to access and store information about state and content. This enables nearly dynamic tracking of activities from any platform or software system—from traditional Learning Management Systems (LMSs) to mobile devices,

simulations, wearables, physical beacons, and more.

xAPI can track micro-behaviors, state, and context such as...

- Reading an article or interacting with an eBook
- Watching a training video, stopping and starting it
- Training data from a simulation
- Performance in a mobile app
- Chatting with a mentor
- Physiological measures, such as heart-rate data
- Micro-interactions with e-learning content
- Team performance in a multi-player serious game
- Quiz scores and answer history by question

Additional Resources

- [xAPI Technical Specification](#)
- [ADL Sample LRS](#)
- [ADL's Controlled Vocabulary](#)
- [Choosing an LRS](#)

Open Source Tools from ADL

- [ADL LRS](#)
- [xAPI Wrapper](#)
- [xAPI Statement Viewer](#)
- [xAPI Lab](#)
- [xAPI Dashboard](#)
- [xAPI Java Library](#)
- [xAPI + YouTube](#)
- [Mobile Course Example](#)
- [All Tools](#)

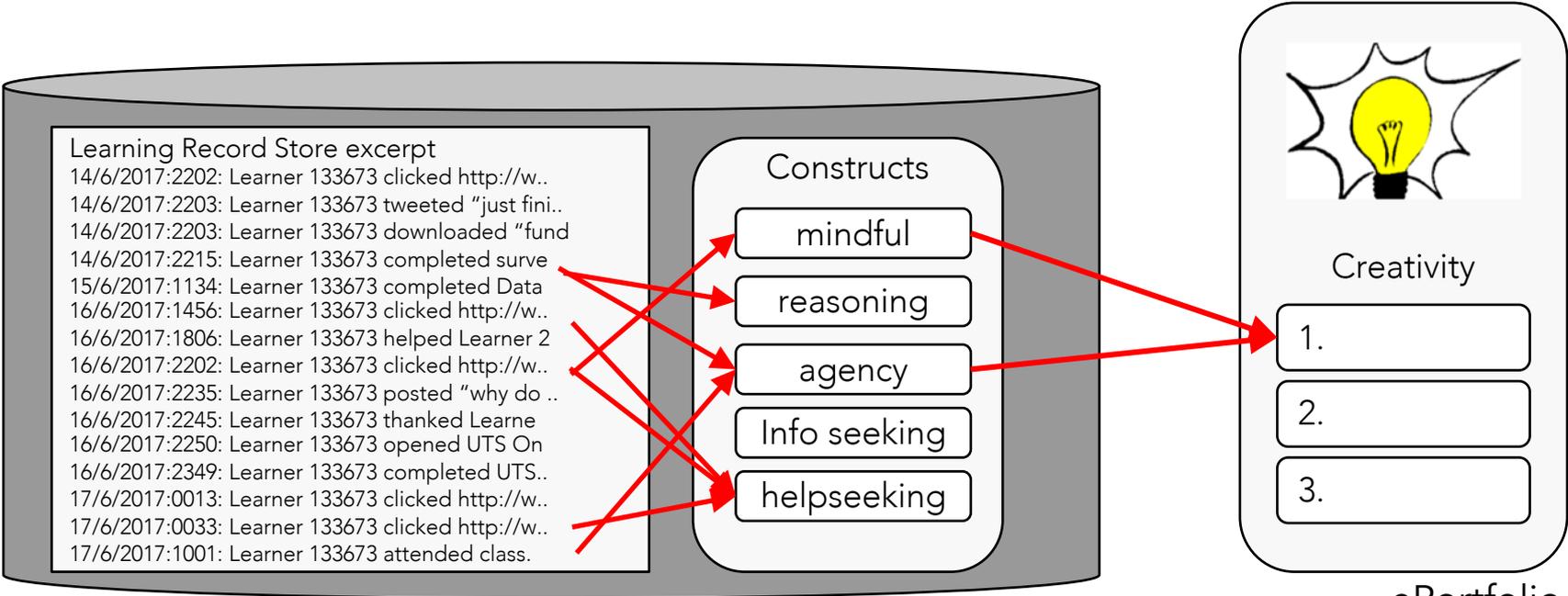
Content Examples & Profiles

- [Original xAPI Examples](#)
- [cmi-5 Profile](#)

Adding xAPI to SCORM

<https://www.adlnet.gov/xAPI>

and will be essential for lifelong learning



Personal Learning Record Store (PLRS)

ePortfolio

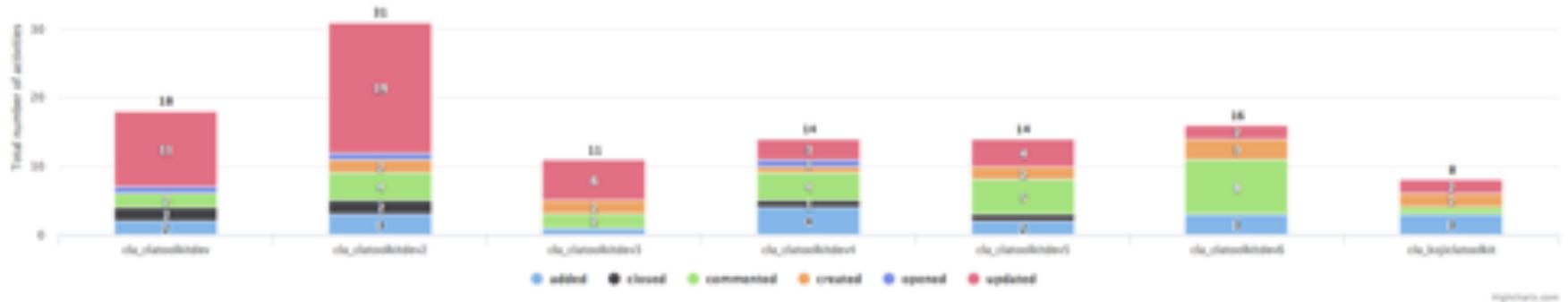
some details (CLA toolkit)

1. Has a philosophy of going to the students where they are actually learning (rather than expecting them to come to us)
2. Can currently access data from: wordpress blogs, twitter, youtube, facebook, trello, github
3. Stores data in xAPI format (to ensure future interoperability)
4. Only retrieves data for specific learning activities and only if students sign up
5. And gives students access to their own analytics

Question: How can we give students access to rich LA that encourages metacognition and reflection?



groupwork dashboard

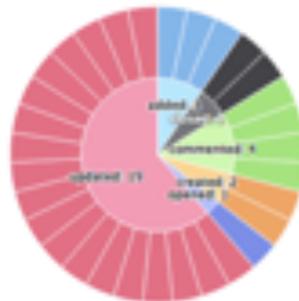


highcharts.com

cla_clatoolkitdev



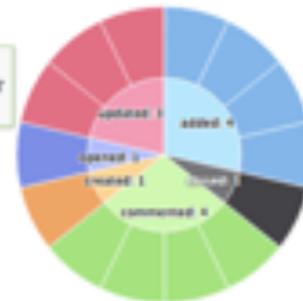
cla_clatoolkitdev2



cla_clatoolkitdev3



cla_clatoolkitdev4



go try it!

A simple learning activity is available on Trello: goo.gl/2hE1JL
Make sure you follow the instructions!

 CLAToolkit

CLAToolkit Class Registration

Enabling connected learning via open source analytics in social media (QUT Ethics Approval Number: 1500000398)

Register

Unit: CLAToolkit-demo

Your class data will be imported from the following locations:

- Twitter Hashtags: [#clatoolkit](#)



Username

Username for CLAToolkit

You are invited to participate in this project because you are enrolled in a subject where you undertake learning activities using social media. Agreeing to participate will lead to the creation of an account in a learning record store for you. You will then associate various social media accounts with that account (as your instructor suggests and you choose). This will allow for data to be gathered from your participation in learning activities using social media that you undertake in your class. You will then be able to see data and reports about your own engagement in the learning activities. This will give you information on your learning that you can use to gain a greater self-awareness of your learning.

Project Description

This project is being undertaken as part of a project for the Office for Learning and Teaching.

The purpose of this project is to design and evaluate new tools that will give you access to data and reports that describe your engagement in learning activities using social media.

CAUTION

- a “go look at it” approach tends to fail
- students don't apply knowledge
 - limited reflection
 - often blindly believe LA instead of questioning it and reinterpreting
 - and it can be **hard to use** without scaffolding

linking LA with LD

- authentic integration with assessment is necessary
- student facing LA great for formative scenarios
- 3 learning design patterns are being used to do this
 - do-analyse-change-reflect
 - active learning squared
 - groupwork

Kitto, K., Lupton, M., Davis, K., Waters, Z. (2016). Incorporating student-facing learning analytics into pedagogical practice. In S. Barker, S. Dawson, A. Pardo, & C. Colvin (Eds.), *Show Me The Learning*. Proceedings ASCILITE 2016 Adelaide, pp. 338-347.

Does it work? ... maybe

Unit	Semester	Aim/pattern	Linked to assessment	N=
IFN614 Information Programs	S2, 2015	Piquing students curiosity Examine, relabel classifier	No	S:12 AL:6
IAB260 Social Technologies	S1, 2016	Do-analyse-change-reflect	Yes	S:23 B:17
IFN614 Information Programs	S2, 2016	Do-analyse-change-reflect (predict, compare)	Yes	S:21 B:11



2016 Information Programs Info

Log in

IFN614 Information Programs

Home Teaching team blog About Site-Wide Activity Assessment Schedule Learning materials

Students CLA Toolkit Twitter chat tips

UNIT SITE

Need help?

Ask your peers: tweet with the hashtag #ifn614

Important question? Tweet the teaching team: @quifn614

Personal question? Email the teaching team: quifn614@gmail.com

Latest from the student blogs

- Reflections on a Community of Inquiry
- Photos by They Ratzoff / CC BY I started study!
- The Wrap Up: My Contributions to the Learning Community this fall
- Because things are the way they are, things will
- It's now the end of the semester. And there are 9.
- Wish I'd - Be of a Mess

Latest posts from the teaching team blog

How to export your blog's content and put it somewhere else

Some of you might want to export your blog's content and import it into your personal blog or your

Author: Kate
Posted: November 23, 2016, 8:38 am

Good luck and a reminder

Just a quick note to remind you that your assessment all needs to be finalized by 11.59pm Sunday

Author: Kate
Posted: November 4, 2016, 9:21 am

Got questions about the CLA Toolkit?

A few of you have mentioned you are having difficulties with the CLA Toolkit. If that's you, please

Author: Kate
Posted: October 30, 2016, 10:01 am

That's (not quite) all folks!

It's Week 13 already and that means it's time for a host of tasks our last Twitter chat, tonight

Latest tweets from the teaching team

Tweets by @quifn614

QUIT #ifn614 @quifn614

New post: How to export your blog's content and put it somewhere else

2016 Information Programs Info/How to export your blog's content and put it somewhere else

... #ifn614

QUIT #ifn614 @quifn614

Oops, I have an A3 reflection submission without a name on it. If it's yours, please get in touch asap. XD

QUIT #ifn614 @quifn614

New post: Good luck and a reminder

2016 Information Programs Info/Good luck and a reminder

... #ifn614

Latest #ifn614 tweets

#ifn614

Here, an empty timeline. That's weird!

Check for Tweets

Embed View on Twitter

2016 Information Programs Info Twitter chat/Author chat 2016

Log in

IFN614 Information Programs

Home Teaching team blog About Site-Wide Activity Assessment Schedule Learning materials

Students CLA Toolkit Twitter chat tips

UNIT SITE

Twitter chat tips

Here's everything you need to know to participate in our Twitter chats this semester.

On this page:

- What is a Twitter chat?
- Prepare for your first Twitter chat
- Use a Twitter chat monitoring tool
- Things to do well in advance of the chat
- Things to do right before the Twitter chat
- Things to do during the chat
- Things to do before you log off
- Things to do after the Twitter chat

What is a Twitter chat?

Not sure what a Twitter chat is? This definition from the Buffer blog explains it all:

A Twitter chat is where a group of Twitter users meet at a pre-determined time to discuss a certain topic, using a designated hashtag (RT) for each tweet contributed. A host or moderator will pose questions (designated with Q1, Q2, ...) to prompt responses from participants (using A1, A2, ...) and encourage interaction among the group. Chats typically last an hour, imagine a business networking event—but without a dress code and with a keyboard instead of a bar. The same social customs

Recent Posts

- How to export your blog's content and put it somewhere else
- Good luck and a reminder
- Got questions about the CLA Toolkit?
- That's (not quite) all folks!
- Return of Assignment 2

Recent Comments

- Service review QUT Library reference services - "No a Librarian" | Michelle Smith on Week 3: Reference
- Kate on Assignment 2 & 3: EDI and grant application
- All on Assignment 2 & 3: EDI and grant application

Does it work? ... maybe

Do: blogging assignment was introduced in the first week of semester

Analyse: In week 2 students were introduced to the Col model (Garrison et al., 2001) and were encouraged to sign up for the CLA toolkit (optional)

- a class provided an overview of the Col model and the CLA toolkit
- 23/40 signed up (eventually)
- Students blogged about role and activity they were aiming for

Change: Students encouraged to think about how they were contributing to the community using data in the CLA toolkit dashboard and to change

Reflect: In week 14 students were required to critically evaluate their engagement with respect to their aims in week 2 (assessed!)

Final blog post prompt for Trial 3

- What role did you want to play in the community this semester? Did you achieve that?
- How many comments did you make on your peers' posts
- Why did you comment as much as you did; what factors influenced the volume of your contributions?
- Did you need to modify your instinctive behaviour to engage the way you wanted to, or felt you should, engage?

Score	Level of analysis	N = 11
1	Included some /all graphs with no reference or analysis	1
2	Included some/all graphs, quantitative analysis relating activity to personality &/or interest	2
3	Included some/all graphs, quantitative analysis relating activity to personality &/or interest, basic analysis on activity in relation to week 2 aim	5
4	Included some/all graphs, referred back to week 2 aim, compared & contrasted, mentioned qualitative aspects	3

Out of 21 who signed up, 40 total!

A very strong reflection from most recent trial

In Week 2 I was very aspirational about the role I wanted to play; ‘I would like my profile to be professional, respectful, organised, connected and visible. I aim to be an active participant within “reflection and critical discourse that is the core dynamic of a community of inquiry”. I achieved my aim of being an active participant as I made over 75 comments on my peers’ posts, averaging over 5 per week. **However I feel I did not participate fully in all 4 phases of the cognitive presence in the Practical [sic] Inquiry Model; triggering event, exploration, integration and resolution – despite having sentence openers taped next to my computer!** Triggering events and some exploration were met by sharing an interesting article relevant to a post I had read and also asking some questions, but I felt a lot of my posts were agreeing with and complimenting upon the erudite musings of my peers. I was definitely wary of confronting differing ideas and promoting a critical discourse. **This participation in all cognitive phases needs improving** so the sentence openers will remain up!
[score=4]

Here lies the issue...

- Even that (very strong) post failed to challenge the analytics
- This is highly problematic!
 - The Col report uses (not very) accurate Machine Learning
 - Students were constantly told that it might not be correct and to challenge it
 - But they effectively forgot about this in their final blog post
 - The black box society is looming



Active Learning Squared

The student trains the classifier while it is training the student...

Connected Learning Analytics Toolkit

Community of Inquiry Classification

📄 Community of Inquiry Classifications

Want to learn about your participation within your learning community?

When you start this activity, you will see one of your posts. We have used machine learning to categorise your cognitive presence according to the Community of Inquiry model. However, our machine learning tool is still learning and it could be wrong. We would like you to:

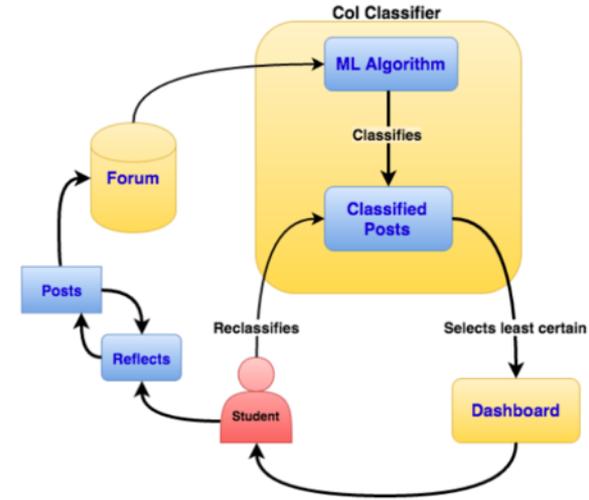
1. Think about how your post was classified
2. Choose what category you believe your post belongs to
3. If you like, you may highlight text from your post that you used in making your decision, or add remarks to the text-box about what helped you come to your conclusion
4. You can view your history below

What is Cognitive Presence?

Cognitive presence has four phases: Triggering, Exploration, Integration, and Resolution.

Triggering Phase initiates discussion about a particular issue/topic for inquiry.
Exploration Phase posts explore the issue at hand by exchanging knowledge between members of the community.
Integration Phase interactions build upon the ideas shared and explored in the Exploration phase and begin to construct understanding or a solution about a topic or issue.
Resolution Phase are messages in a discussion that test the solutions or understanding developed in the Integration phase.

[Begin](#)



Active Learning Squared

Connected Learning Analytics Toolkit



Community of Inquiry Classification

IM Community of Inquiry Classifications

What is this?

We classified as: Triggering

Here's a free definition for your buzzword bingo card:

Conspicuous: an approach to defining the levels at which an institution collects in a given content area. It's about the depth of collecting and there are standard indicators, which you can read about in this [PLA guide to collection development policies](#). Conspicuous is also an approach that can be taken to collection development policy writing, where the policy sets out the target level of depth in particular areas of collecting. It's not used much in Australian libraries any more, and is a bit out of fashion internationally (though used by some research libraries still).

Sharing information outside links

Triggering

Exploration

Integration

Resolution

Other

Preview:

Author

Posts

July 27, 2015 at 9:52 am

#402



Kate Owen

Keymaster

Here's a free definition for your buzzword bingo card...

Conspicuous: an approach to defining the levels at which an institution collects in a given content area. It's about the depth of collecting and there are standard indicators, which you can read about in this [PLA guide to collection development policies](#). Conspicuous is also an approach that can be taken to collection development policy writing, where the policy sets out the target level of depth in particular areas of collecting. It's not used much in Australian libraries any more, and is a bit out of fashion internationally (though used by some research libraries still).



Does it work?

	posts	class	agree	ToTut	ToClas	%ToM
A	8	8	0.125	1:56	3:18	0:28
B	10	10	0.333	0:58	0:55	0:06
C	7	5	0.200	2:06	2:07	0:32
D	19	19	0.181	1:47	4:06	0:12
E	4	4	0	1:22	0:49	0:16
F	18	18	0.050	5:12	4:42	0:17
Av	11	10.67	0.143	2:13	2:40	0:19

Table 3: Key performance indicators for each IS student attempting the AL^2 task.

	IRR (κ)	IRR (%)	EC-UnSM	EC-SM	NB
IS dataset	0.09	43.0	0.473	0.305	0.302
ALASI15	0.3	47.4	0.342	0.368	0.078

Table 1: Accuracy of the three different classifiers investigated in this work for the IS and ALASI15 datasets. IRR between the two expert coders is also given, both as a kappa value (κ) and as an percentage of agreement (%) for the two datasets.

	class	agree	ToTut	ToClas	%ToM
A	13	0.153	0:20	3:56	0:18
B	10	0.400	2:31	2:10	0:13
C	13	0.428	3:44	8:35	0:40
D	10	0.500	0:45	2:07	0:13
E	8	0.375	3:47	2:04	0:16
F	3	0.333	0:29	0:19	0:17
G	35	0.114	3:04	5:02	0:09
H	2	0	1:26	0:45	0:45
I	12	0.333	5:01	5:43	0:29
J	8	0.250	6:36	3:40	0:28
K	19	0.450	3:08	7:02	0:22
L	6	0.167	0:21	2:17	0:46
M	7	0.142	1:55	4:59	0:43
N	27	0.259	1:31	9:38	0:21
O	35	0.228	1:51	2:58	0:05
P	15	0.400	0:20	5:12	0:21
Q	6	0.333	4:22	5:22	0:54
R	27	0.222	0:35	11:38	0:39
S	1	0	5:10	0:00	0:00
T	7	0	3:47	5:58	0:51
Av	12.61	0.254	2:32s	4:28	0:25

Table 4: Key performance indicators for each ALASI15 participant attempting the AL^2 task.

Only Trial 1? Why did it not run with Trial 3?

- It did
- No students used it
- Why not?
- No link to assessment
(made the go look at it mistake again)



so what have we learned?

1. *Sometimes the last thing you need is a better dashboard...*
2. *Thoughtful learning design and integration with assessment structure is essential*
3. *Teaching students to challenge the analytics that will be applied to them will become increasingly important*

thankyou!