

Designing for student facing learning analytics

Kirsty Kitto

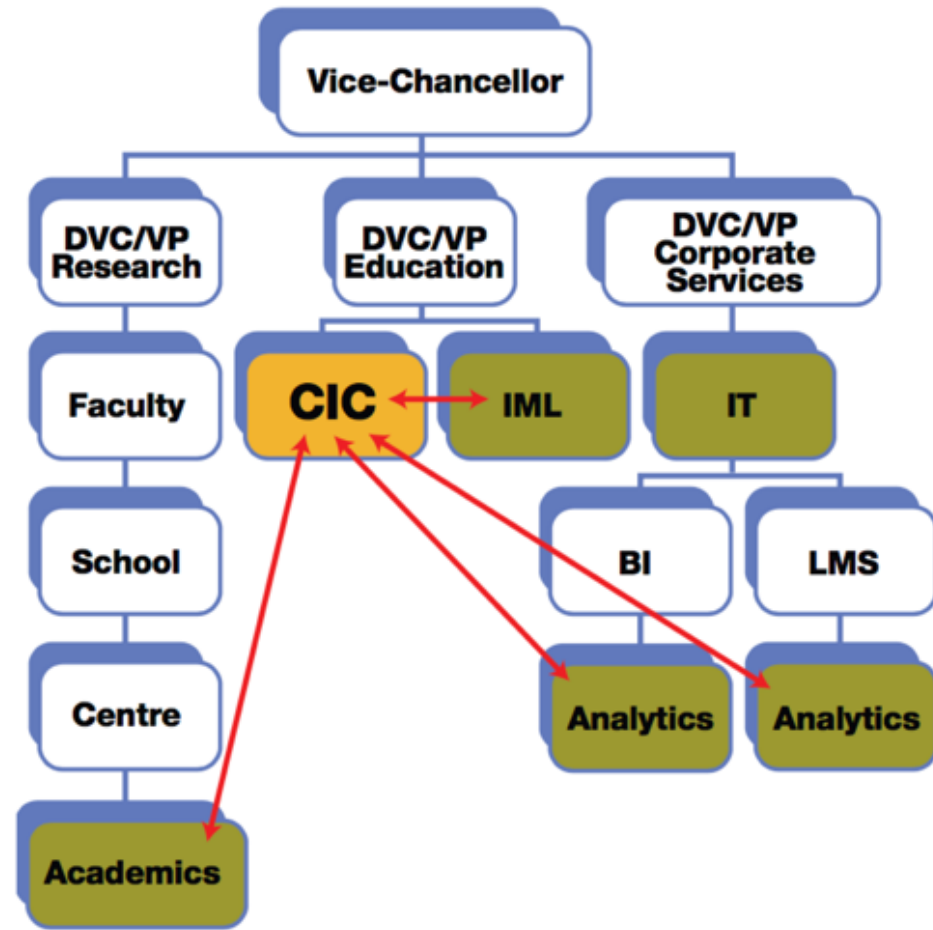
Connected Intelligence Centre

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what is UTS:CIC?

Connected Intelligence Centre

- UTS innovation lab specialising in Learning Analytics
- provides in house data science consultancy
- academics teach data science and perform research
- trains PhDs in Learning Analytics



what is learning analytics? (LA)

Learning analytics is the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimising learning and the environments in which it occurs

SoLAR definition



example: course signals at Purdue

The screenshot shows the Purdue University course website for MA-154 Fall 2008. The header includes the Purdue University logo, "West Lafayette Academic Campus", and "Fall 2008 - MA-154 - T Delv". The navigation bar has tabs for "Build", "Teach", and "Student View". The left sidebar contains "Course Tools" (Course Content, Who's Online), "My Tools", and "My Grades". The main content area displays "154 Fall 2008" and includes links for "Caution! You can do better in this class.", "Course Information", "Daily Lessons", "MA 154 Course Web Page", and "Opt in and Opt out". A footer note provides contact information for Tim Delworth.

PURDUE UNIVERSITY West Lafayette Academic Campus

Build Teach Student View

Fall 2008 - MA-154 - T Delv

Your location: Home Page

154
Fall 2008

Caution! You can do better in this class.

Course Information

Daily Lessons

MA 154 Course Web Page

Opt in and Opt out

Questions? Contact Tim Delworth, delworth@math.purdue.edu

Arnold, K. E., & Pistilli, M. D. (2012). Course signals at Purdue: Using learning analytics to increase student success. In Proceedings of the 2nd international conference on learning analytics and knowledge (pp. 267-270). ACM.

many EdTech systems offering some form of LA



BUT is it any good?

where does learning happen?



July 2018

Home

Modules

Announcements

Assignments

View Progress

Export Course Content

+ Module

+ Get started

Welcome to 36103 - Statistical Thinking for Data Science!

traditionally LA has focused upon providing analytics within the confines of specific systems built by vendors...
(e.g. LMSs, eBooks, SIS)

Search

Settings

Don't plagiarise!

Resources, texts, and good online courses

+ Module 0: Preparing for statistical thinking

Am I ready for statistical thinking?

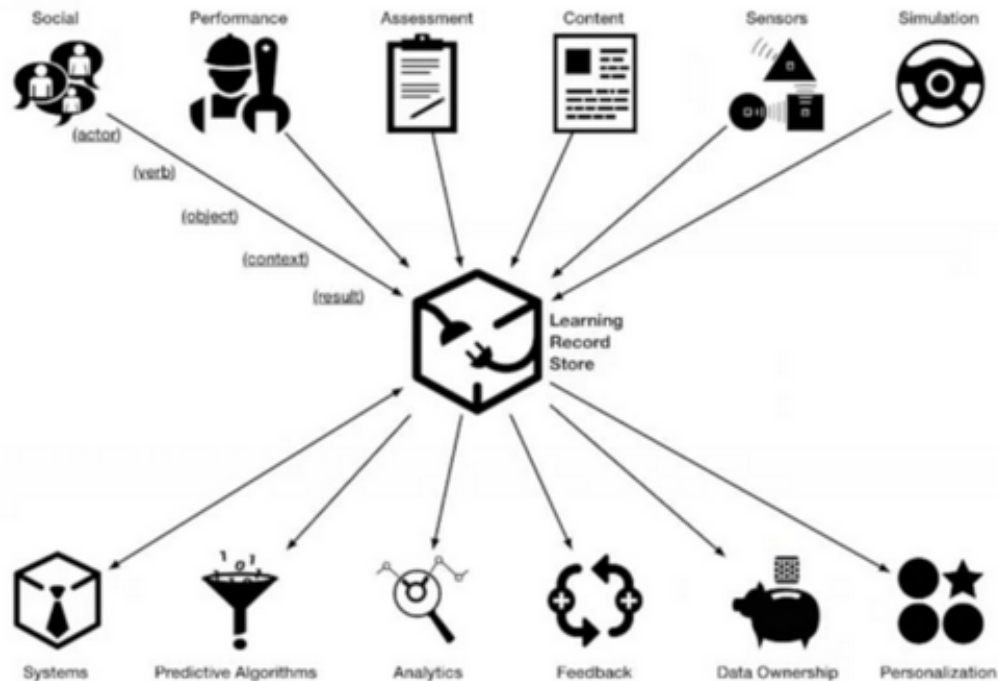


but learning happens everywhere!

9




new data standards are emerging to help us collect and harmonise data from many spaces and places





so a lot of data is coming to education!
but how can we use it effectively?



careful... data must be cooked with care!

- *are you capturing all of the relevant data?*
- *is what you are collecting even useful?*
- *or are you just collecting it because you can?*
- *and what metrics are you developing from your data?*

Bowker, G. C. (2005). Memory practices in the sciences (Vol. 205). Cambridge, MA: Mit Press.

the clicks to constructs problem

*low level click stream data
rarely yields significant
insights*

*BUT a careful mapping to
educational constructs can
lead to far more useful
outcomes*





student facing LA

but what *type* of
student facing LA
are we talking
about?

Are students acquiring:
content and skills?
or
learning to learn?



we should give students access to rich LA

In principle this should help to promote things like:

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

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



but care is required!

what would a student do if:

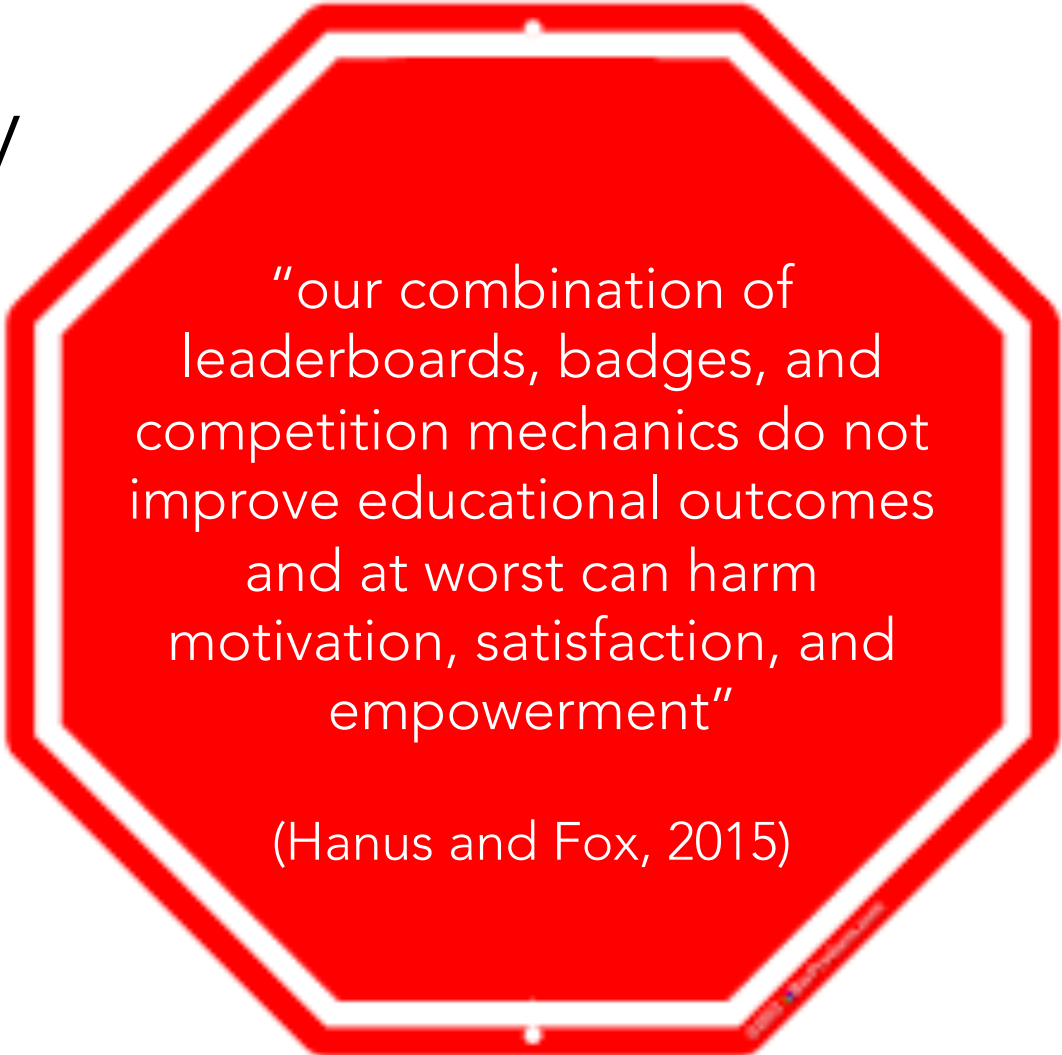
- they were told by a predictive model that they were failing a subject?
- a dashboard showed them at the bottom of a leader board?
- ... at the top?
- a predictive model told them something they knew was wrong?
- a social network tool showed them as the only student who was not connected to anyone else in class? ... and they were suffering from anxiety and depression?



things can go very wrong with naïve approaches

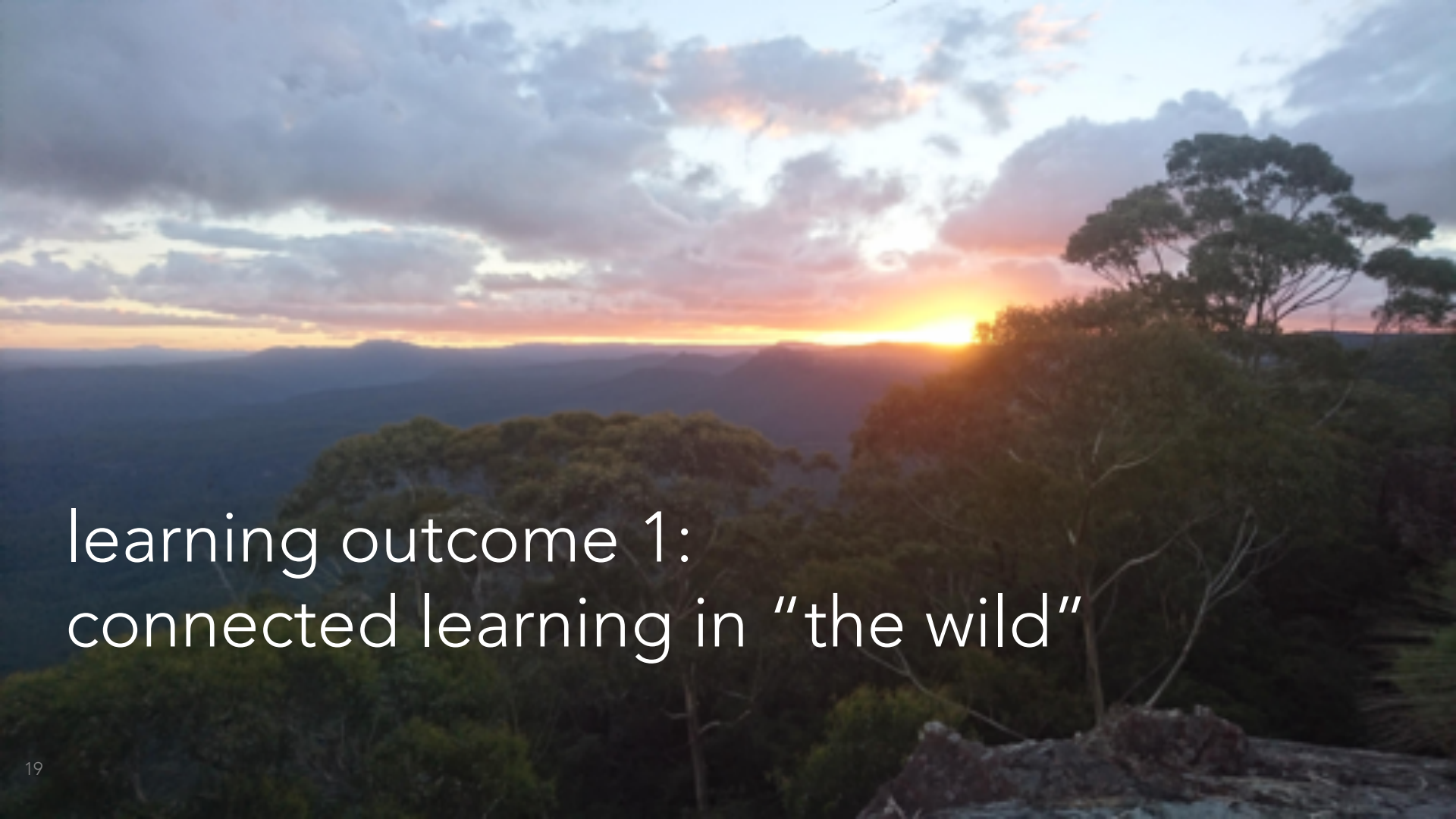
Hanus, M. D., & Fox, J. (2015). Assessing the effects of gamification in the classroom: A longitudinal study of intrinsic motivation, social comparison, satisfaction, effort, and academic performance. *Computers & Education*, 8, 152–161.

Khan, I., & Pardo, A. (2016). Data2U: Scalable real time student feedback in active learning environments. In *Proceedings of the international conference on learning analytics and knowledge* (pp. 249–253). Edinburgh, Scotland: ACM.



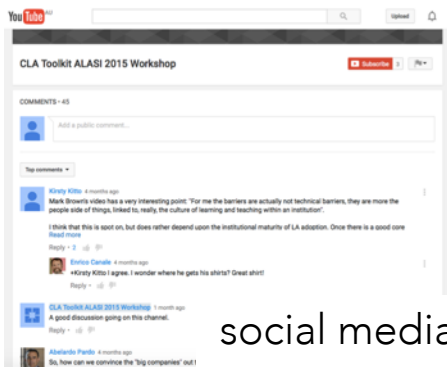
"our combination of leaderboards, badges, and competition mechanics do not improve educational outcomes and at worst can harm motivation, satisfaction, and empowerment"

(Hanus and Fox, 2015)



learning outcome 1:
connected learning in “the wild”

the connected learning analytics toolkit



social media



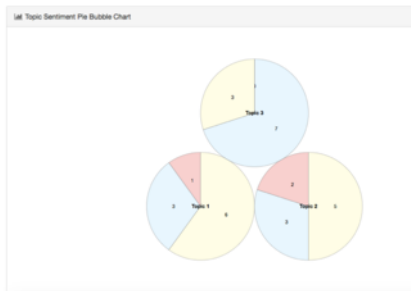
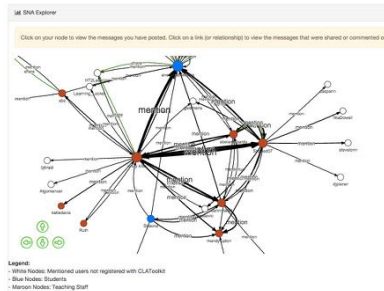
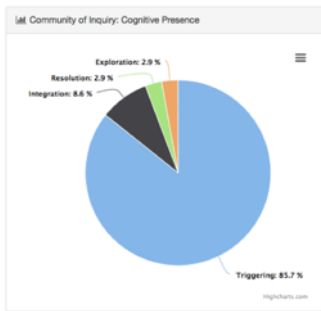
```
330 class TOPICMODELView(DefaultMixin, APiView):
331
332     def get(self, request, *args, **kw):
333
334         course_code = request.GET.get('course_code', None)
335         platform = request.GET.get('platform', None)
336         start_date = request.GET.get('start_date', None)
337         end_date = request.GET.get('end_date', None)
338         num_topics = int(request.GET.get('num_topics', None))
339
340         result = json.loads(get_LDAPIS_JSON(platform, num_topics, course_code, start_date, end_date))
341         response = Response(result, status=status.HTTP_200_OK)
342         return response
343
344 class MECLASSEIFY(DefaultMixin, APiView):
345
346     def get(self, request, *args, **kw):
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 MULTITAG(DefaultMixin, APiView):
356
357     def get(self, request, *args, **kw):
```

learning analytics

students

academics

admin & developers



Title	Description	User #	Created		
Kinley's LRS		1	2019-05-09 11:00:05	✓	✗
Mandy's LRS		1	2019-05-11 23:02:19	✓	✗
Jamie's LRS		1	2019-05-11 23:02:35	✓	✗
Abelardo's LRS		1	2019-05-11 23:03:00	✓	✗
Shawn's LRS		1	2019-05-11 23:03:49	✓	✗
Grace's LRS		1	2019-05-11 23:04:23	✓	✗
Zaki's LRS		1	2019-05-11 23:05:00	✓	✗
Sam's LRS		1	2019-05-11 23:05:00	✓	✗
Simone's LRS		1	2019-05-11 23:05:35	✓	✗
Abelardo's LRS		1	2019-05-11 23:05:10	✓	✗

Help & Support

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:

Kirsty Kitto (Lead Investigator), Mandy Lupton, John Banks, Dann Mallet, Peter Bruza

UNIVERSITY OF SOUTH AUSTRALIA

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




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, slack
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?

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



Learning design patterns for student facing LA

do-analyse-change-reflect

Do: Students are instructed to participate in some sort of activity.

Analyse: Students are encouraged to consider LA dashboards that have data collected during the *do* phase.

Change: Students encouraged to consider *changing* their behaviour as a result of the analytics that they see in the *analyse* phase.

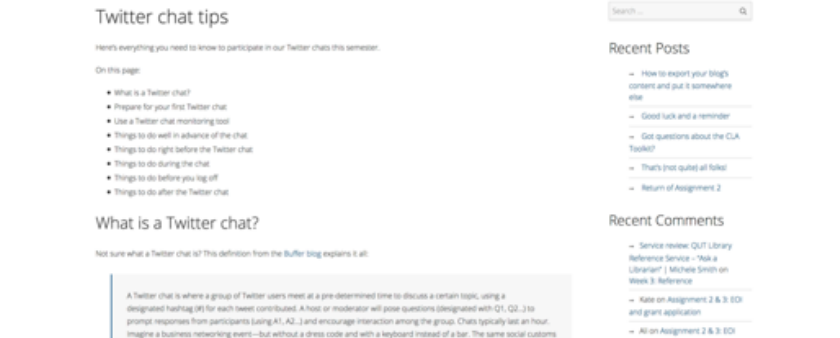
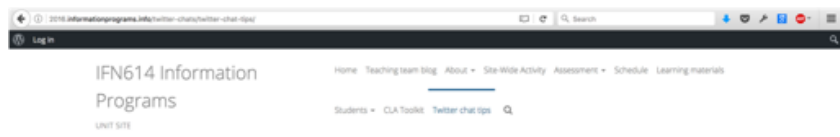
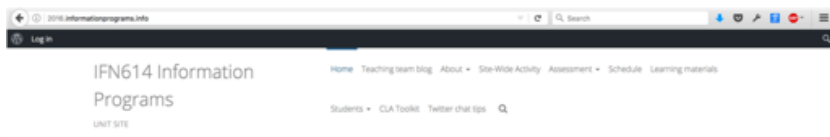
Reflect: Students participate in a reflective process where they explain how they used the LA to make sense of their behaviour, and whether they decided to change as a result (and how).

Kitto, K., Lupton, M., Davis, K., Waters, Z. (2017). Designing for Student Facing Learning Analytics, Australasian Journal of Educational Technology, 33(5), 152-168.

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



for example (Trial 3)

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]

learning outcome 2: better writing

We ^{should} ~~shold~~ not make ^b ~~nanobots~~ ^{for} ~~fore~~ ^{ple reason} ~~multiple reesuns~~. As you ^a ~~probably~~ know in the ^{wrong} ~~rong~~ hands they can be ~~dangerus~~. So to ~~fined~~ ^{ea} ~~out~~ the rest you are going to have to ~~reed~~ ^{ans} the rest of this ~~exsithing~~ ^{bon} artikul. ^{ea} ~~an~~

For one a ~~nanobot~~ could have a bug and start ~~eeing~~ ^{ea} ~~enything~~ ^{ans} ~~cardin~~ ^{bon} ~~basted~~ or just not work at all. ~~Another~~ thing is that they may also eat the ~~rong~~ ^{ea} ~~substins~~ ^{ans}, ~~wich~~ ^{bon} ~~wold~~ ^{ea} ~~onle~~ be ~~bade~~ in some cases. ~~Wat~~ is ~~rile~~ bad if one has a bug ~~it~~ ^{ea} ~~could~~ ^{ans} make ~~mor~~ with the same ~~problem~~. Now I ~~know~~ that you are ~~wondering~~ ^{ea} ~~wat~~ I am ~~tolking~~ ^{ans} ~~abot~~, I ~~mean~~ ^{bon} ~~how~~ could it make ~~mor~~ of its ~~problem~~ ^{ea} ~~inles~~ it ~~colud~~ ^{ans} ~~rerite~~ ^{bon} ~~uthur~~ ~~nanobots~~ ^{ea} ~~programs~~. Well some ~~sientintists~~ are ~~tring~~ to ~~figyer~~ out how to ~~mak~~ ^{ea} ~~it~~ ~~posibul~~ ^{ans} for them to copy ~~themsells~~. So one might be able to ~~bekum~~ ^{bon} 100.

Also they are ~~planing~~ to make them ~~abule~~ to ~~cile~~ ^{ea} ~~bakterya~~, and there they might eat away at the ~~intestens~~ ^{ans} ~~insted~~. But don't be ~~werryd~~ they ~~mite~~ make it so that they will go ~~throw~~ the body with the rest of ~~th~~ ~~fook~~. Also they might program them to ~~tern~~ of after a ~~serten~~ ^{ea} ~~amout~~ of time.

They are also ~~planing~~ to make ~~smal~~ ^{ea} ~~traking~~ ^{ans} ~~divises~~ so kids ~~wont~~ get lost. I just hope they are ~~haker~~ safe and they aren't over used. I don't want the ~~goverment~~ ^{bon} to know to much. I also don't want some ~~sikeco~~ ^{ea} ~~thraking~~ me.

So as you can see there are lots of problems. There is bugs, ~~hakers~~, ~~goverment~~ ^{ea} ~~overyuos~~, and ~~faling~~ into the ~~rong~~ hands. There is good ~~noos~~ I think we are ~~stile~~ ^{ans} ~~alitaule~~ ^{bon} ~~fare~~ from ~~geting~~ a lot of ~~nanobots~~ just yet. ^{news}

LA must be linked to the pedagogical purpose!

reflective writing

Depth	Intention						What change is likely to lead to future benefits?
	Integration			What impact on my goals/inspirations?	What other ideas could I use to change myself?	How do others address these challenges?	How can I learn from other perspectives?
	Internalisation		What do these feelings say about me?	How is this a problem that challenges me?	Why do I need to change?	How can I change?	
	Interpretation	What does it mean for me?	Why do I feel this way?				
	Impression	What do I notice about my situation?					
	Thoughts	Feelings	Challenge	Self critique	Potential solution	Learning opportunity	
	CONTEXT		CHALLENGE		CHANGE		
	Narrative						

Gibson, A., Aitken, A., Sándor, Á., Buckingham Shum, S., Tsingos-Lucas, C., & Knight, S. (2017, March). Reflective writing analytics for actionable feedback. In Proceedings of the Seventh International Learning Analytics & Knowledge Conference (pp. 153-162).

research writing (CARS model)

Move 1 – Establishing a research territory:

E – Emphasis of a significant or important idea

B – Background information and reviewing previous work

Move 2 – Establishing a niche:

C – Contrasting idea, tension, disagreement or critical insight

Q – Question or gap in previous knowledge

Move 3 – Occupying the niche

N – Novelty and value of your research

S – Summary of the authors goal, nature of the research or structure of the paper

Abel, S., Kitto, K., Knight, S., Buckingham Shum, S. (2018). Designing personalised, automated feedback to develop students' research writing skills. In Proceedings ASCILITE 2018. In Press.

See www.heta.io for more details

feedback – reflective writing

Key

- ☐ Words associated with strong feelings
- ☒ Expressions indicating belief, learning, or knowledge.
- ☒ Expressions indicating self critique
- ☒ One or more keywords missing
- ☒ Sentence too long, might disengage the reader. Try breaking it into smaller sentences
- ☒ Initial thoughts and feelings about a significant experience.
- ☒ The challenge of new surprising or unfamiliar ideas, problems or learning experiences.
- ☒ Deeper reflection, personally applied.
- ☒ How new knowledge can lead to a change

Auto feedback: [Get Feedback](#) [Save](#) [Export to PDF](#) [Key](#)

Feedback (Reflective)

Initially had no idea what sort of Community Pharmacy setting. It has been a journey which exposed my strengths and weaknesses as a health care professional. I personally saw it as a journey which exposed my strengths and weaknesses. I saw my preceptor as someone who guided me to help address my weaknesses. However, I began to realise that this was only to a certain extent. The most important thing I learnt from these experiences is that I can only develop my skills if I actively contribute to the pharmacy by demonstrating initiative. This initiative was a product of my inner passion and motivation to practise as a pharmacist in future. Various encounters along my journey proved to me that every day presents with a new challenge. I initially could not comprehend just how diverse the members of the community were, particularly in regards to their health issues and understanding of their condition. I found that my clinical placement allowed me to see things from a perspective that I would never have imagined. In order to illustrate these notions, I have decided to reflect upon two major ideas.

Effective patient communication was a skill I had significantly developed during my clinical placement. A specific example was when I dispensed rosuvastatin for a patient. It was one of the first weeks of clinical placement and by this time I had become quite efficient at the dispensing process. A female patient came in

feedback – research writing

Analytical Report

Feedback

Resources

Move 1: Establishing a research territory

- E** Emphasis of a significant or an important idea
- B** Background information and reviewing previous work

Move 2: Establishing a Niche

- C** Contrasting idea, tension, disagreement or critical insight
- Q** Question or gap in previous knowledge

Move 3: Occupying the Niche

- N** Novelty and value of your research
- S** Summary of the author's goal or nature of the research, or structure of the paper

E B ABSTRACT:

It is now widely accepted that timely, actionable feedback is essential for effective learning. In response to this, data science is now impacting the education sector, with a growing number of commercial products and research prototypes providing "learning dashboards", aiming to provide real time progress indicators. **E C** From a human-centred computing perspective, the end-user's interpretation of these visualisations is a critical challenge to design for, with empirical evidence already showing that 'usable' visualisations are not necessarily effective from a learning perspective. Since an educator's interpretation of visualised data is essentially the construction of a narrative about student progress, we draw on the growing body of work on Data Storytelling (DS) as the inspiration for a set of enhancements that could be applied to data visualisations to improve their communicative power. **S** We present a pilot study that explores the effectiveness of these DS elements based on educators' responses to paper prototypes. **S** The dual purpose is understanding

Analytical Report

Feedback

Resources

Thank you for submitting your draft to AcaWriter. Quality writing comes from revision. Research shows that writing drafts and revising your text helps improve the quality of your writing.

Remember AcaWriter is a machine – so it may not highlight all your moves correctly and could give you incorrect feedback. So, don't be afraid to disagree with the feedback, if you believe you have included all three moves in the correct order.

i It seems you have stated how your research fills the gap and/or solves the research problem [Move 3 – Occupying the niche (S or N sentences)] before you have indicated the gap and/or explained your research problem [Move 2 Establishing a niche (C or Q sentences)]. It is more effective to indicate the gap and explain the research problem before you state your solution and aim of your study. AcaWriter suggests putting Move 3 – Occupying the niche (S or N sentences) after Move 2 Establishing a niche (C or Q sentences).

A photograph of a modern classroom or computer lab. Students are seated at white tables, working on desktop computers. The room has a vibrant red wall with a large, stylized graphic of a person's head and shoulders. The ceiling is white with recessed fluorescent lights and two projectors. A semi-transparent dark red box with white text is overlaid on the upper right portion of the image.

learning outcome 3:
data literacy for a lifetime of learning

elaboration: writing analytics

Analytical Report

Feedback

Resources

Move 1: Establishing a research territory

- E Emphasis of a significant or an important idea
- B Background information and reviewing previous work

Analytical Report

Feedback

Resources

Thank you for submitting your draft to AcaWriter. Quality writing comes from revision.
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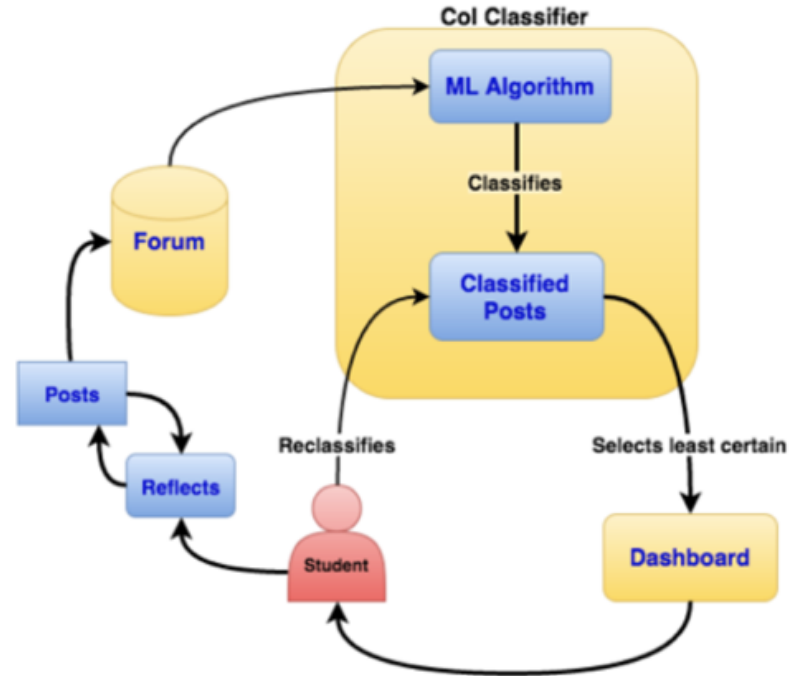
It is now widely accepted that timely, actionable feedback is essential for effective learning. In response to this, data science is now impacting the education sector, with a growing number of commercial products and research prototypes providing "learning dashboards", aiming to provide real time progress indicators. E C From a human-centred computing perspective, the end-user's interpretation of these visualisations is a critical challenge to design for, with empirical evidence already showing that 'usable' visualisations are not necessarily effective from a learning perspective. Since an educator's interpretation of visualised data is essentially the construction of a narrative about student progress, we draw on the growing body of work on Data Storytelling (DS) as the inspiration for a set of enhancements that could be applied to data visualisations to improve their communicative power. S We present a pilot study that explores the effectiveness of these DS elements based on educators' responses to paper prototypes. S The dual purpose is understanding

❗ It seems you have stated how your research fills the gap and/or solves the research problem [Move 3 – Occupying the niche (S or N sentences)] before you have indicated the gap and/or explained your research problem [Move 2 Establishing a nice (C or Q sentences)]. It is more effective to indicate the gap and explain the research problem before you state your solution and aim of your study. AcaWriter suggests putting Move 3 – Occupying the niche (S or N sentences) after Move 2 Establishing a nice (C or Q sentences).

active learning squared (AL²)

the student trains the classifier...

...while it is training the student...



Kitto, K., Buckingham Shum, S., Gibson, A. (2018). Embracing imperfection in learning analytics. In Proceedings of the 8th International Conference on Learning Analytics and Knowledge (LAK '18). ACM, New York, NY, USA, 451-460. DOI: <https://doi.org/10.1145/3170358.3170413>

cognitive presence

"extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication."

Triggering



Exploration



Integration



Resolution

Garrison, Anderson, Archer (2001) Critical thinking, cognitive presence, and computer conferencing in distance education. American journal of distance education, 15(1):7–23



<https://plus.google.com/u/0/+StefanPSchmid/posts/4wrUbFzFwpJ>

current state of the art uses machine learning to classify discussion forum text using this construct

Kovanović, Joksimović, Waters, Gašević, Kitto, Hatala, Siemens (2016).
Towards automated content analysis of discussion transcripts: a cognitive
presence case. In Proceedings of the Sixth International Conference on
Learning Analytics & Knowledge (LAK '16). ACM, New York, NY, USA, 15-24.

Towards Automated Content Analysis of Discussion Transcripts: A Cognitive Presence Case

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ABSTRACT

In this paper, we present the results of an exploratory study that examined the problem of automating content analysis of student online discussion transcripts. We looked at the problem of coding discussion transcripts for the levels of cognitive presence, one of the three main constructs in the Community of Inquiry (CoI) model of distance education. Using Coh-Metrix and LINC features, together with a set of custom features developed to capture discussion content, we developed a random forest classification system that achieved 70.3% classification accuracy and 0.60 Cohen's kappa, which is significantly higher than values reported in the previous studies. Besides improvement in classification accuracy, the developed system is also less sensitive to overfitting as it uses only 205 classification features, which is around 100 times less features than in similar systems based on bag-of-words features. We also provide an overview of the classification features most indicative of the different phases of cognitive presence that gives an additional insights into the nature of cognitive presence learning cycle. Overall, our results show great potential of the proposed approach, with an added benefit of providing further characterization of the cognitive presence coding scheme.

Keywords

Community of Inquiry (CoI) model, content analysis, content analytics, online discussions, text classification

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1. INTRODUCTION

Online discussions are commonly used in modern higher education, both for blended and fully-online learning [42]. In distance education, given the absence of face-to-face interactions, online discussions represent an important component of the whole educational experience. This is especially important for the social-constructivist pedagogies which emphasize the value of social construction of knowledge through interactions and discussions among a group of learners [2]. In this regard, the Community of Inquiry (CoI) model [22, 33] represents perhaps one of the best researched and validated models of online and distance education, focused on explaining important dimensions – also known as presences – that shape students' online learning experience.

The most commonly used approaches to the analysis of online discussion transcripts are based on the quantitative content analysis (QCA) [12, 54, 51, 15]. According to Krippendorff [37] content analysis is "a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contents of their use" [p18]. In the case of the study presented in this paper, contents is online learning environments. QCA is a well defined research technique commonly used in social science research, and it makes use of specifically designed coding schemes to analyze text artifacts with respect to the defined research goals and objectives. For instance, the CoI model defines a set of coding schemes which are used by the educational researchers to assess the levels of three CoI presences.

In the domain of educational research, QCA of student discussion data have been mainly used for the metapedagogical and research after the courses are over without an impact on the students' learning outcomes [53]. In the field of content analytics [36] – which focuses on building analytical models based on the learning content including student produced content such as online discussion messages – there have been attempts to automate some of these coding schemes. Most notable are the efforts of McKim [44] and Corich et al. [11] on automation of the CoI coding schemes, which served

but contextuality...

- training data sets are rarely shared in education
- and cohorts change – a lot!
- the Col report uses (not very) accurate Machine Learning
- it is not robust in new learning scenarios
- need to be able to rapidly train classifiers for new cohorts
- does this provide a new teachable moment?



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

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What is this?

Was classified as: Triggering

Here's a free definition for your buzzword bingo card

Conspectus: 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 IFLA guide to collection development policies. Conspectus 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 8:52 pm

#402



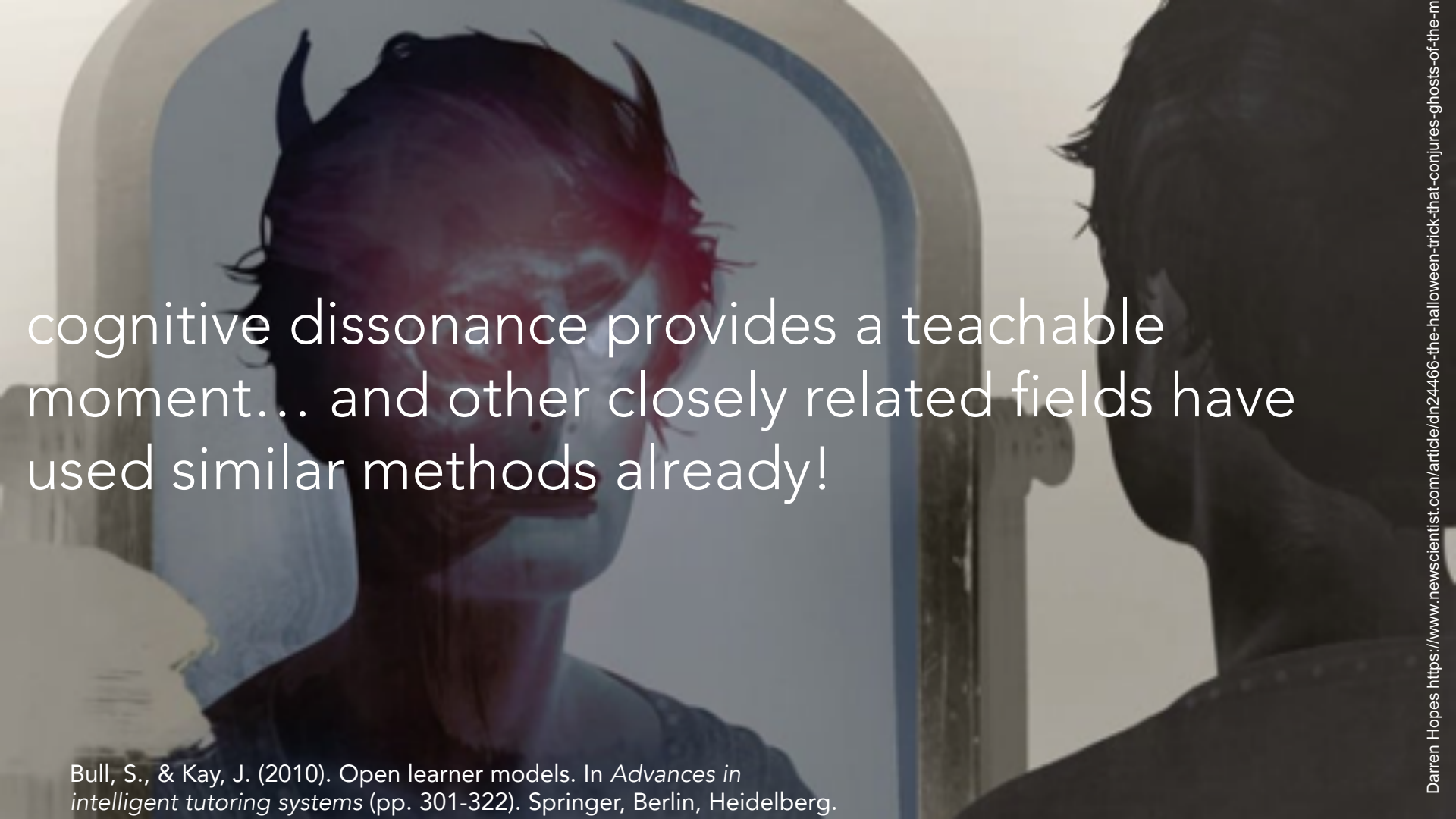
Katie Davis

Keymaster

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A person wearing a devil mask with horns and a red face is looking into a mirror. The reflection shows the person's face with a neutral expression. The background is a simple room with a mirror and a wall.

cognitive dissonance provides a teachable moment... and other closely related fields have used similar methods already!

Bull, S., & Kay, J. (2010). Open learner models. In *Advances in intelligent tutoring systems* (pp. 301-322). Springer, Berlin, Heidelberg.

in summary

- learning happens everywhere!
- student facing learning analytics opens up new pedagogical possibilities
- but to do this we need to start from the learning!
- ...and then work back to the learning analytics required to help achieve the outcomes we want

Questions?