

# Learning analytics – opportunities and issues

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The Open University, UK

**21st SAAIR Conference 2014**

***Yesterday, today and tomorrow: 21 years of Institutional Research***



Southern African Association for Institutional Research







<http://podcast.open.ac.uk/oulife/podcast-open-university-worldwide#134e89002f0>





<http://podcast.open.ac.uk/oulife/podcast-HistoryoftheOU#!29668c6730> (early tech) 0:00 – 0:48



**Learning analytics** is the measurement, collection, analysis and reporting of data about learners to increase our understanding of them and their learning needs, and to use that understanding to influence their learning.



'99% of who you are is invisible'  
R. Buckminster Fuller

<http://www.glennsasscer.com/wordpress/wp-content/uploads/2011/10/iceberg.jpg>



# What do we mean by data about learners?

Disability

Learning style

Background

Family income

Gender

Funding issues

Learning behaviours

Posting to forums - frequency

Assignment/test scores

Posting to forums - content

Location

Study goals

Language

Age

Working status

Log in frequency

Websites visited

Hitting study milestones

Ethnicity

Frequency of contact with tutor

Study history

**Learnovate Centre Corporate LMS**

**Analytics Overview**

**Business Unit**

**Research**

**Manufacturing**

**Human Resources**

**Marketing and Sales**

**Learning and Development**

**WebQuest: The Influenza Epidemic of 1918**

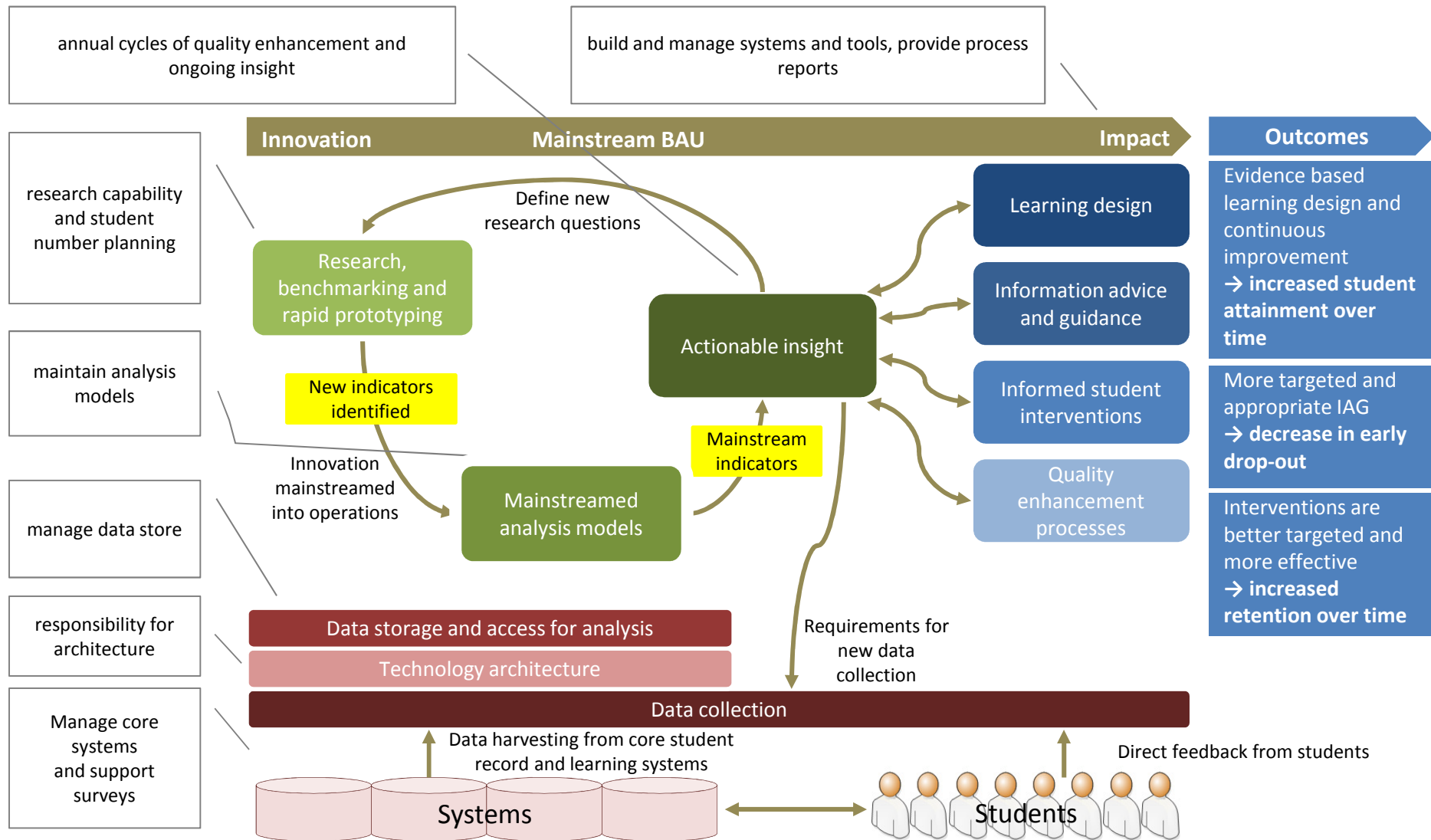
Module 5 Instructions	Online Streaming	Video Downloads	Mobile	WebQuest: The Influenza Epidemic of 1918
42	30	11	10	75
20	9	21	21	21
21	21	21	21	21

**Student 2 - Observation & Analysis**

Student 2	Observation & Analysis	Student 2
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5

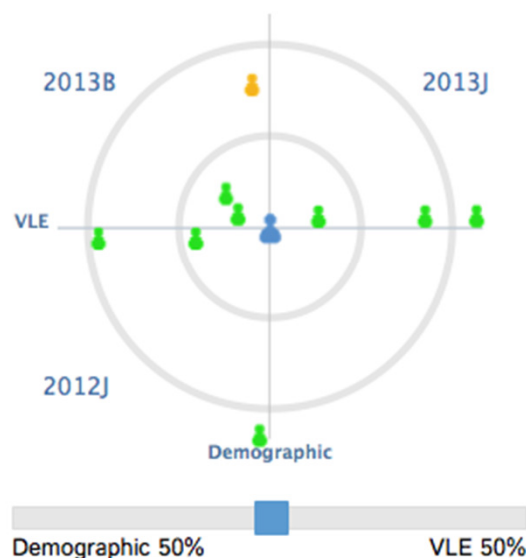


# The OU analytics innovation to impact cycle



# Recommender

## NEAREST STUDENTS



## SCORES

Assignment	Prediction	Real	Justification
TMA 1	Submit	58	Forum VLE activity in week 4 $\geq 0$ Forum VLE activity in weeks 3 and 4 $\geq 0$ summary VLE activity in week 4 $\geq 6$
TMA 2	Submit	57	Forum VLE activity in week 7 $\geq 0$ Forum VLE activity in week 8 $\geq 0$ summary VLE activity in weeks 7 and 8 $\geq 30$
TMA 3	Submit	49	Resource VLE activity in week 13 $\geq 0$ Resource VLE activity in weeks 12 and 13 $\geq 0$ Resource VLE activity in weeks 11 and 13 $\geq 0$
TMA 4	Submit	NA	Resource VLE activity in week 17 $\geq 0$ Resource VLE activity in weeks 16 and 17 $\geq 0$ Subpage VLE activity in week 17 $\geq 0$
TMA 5	NA	NA	NA
TMA 6	NA	NA	NA

## STUDENT'S ACTIVITY RECOMMENDER

Visit [Activities for Book 4](#) (6.1, 6.2, 7.1, 8.1).

Visit [Additional guidance for Book 4](#).

Visit [Book 4 The Right Chemistry](#) (Chapters 6-8).

Consider participating in [Forum for S104](#).

Visit [List of chemical elements](#).



# Purdue's Course signals

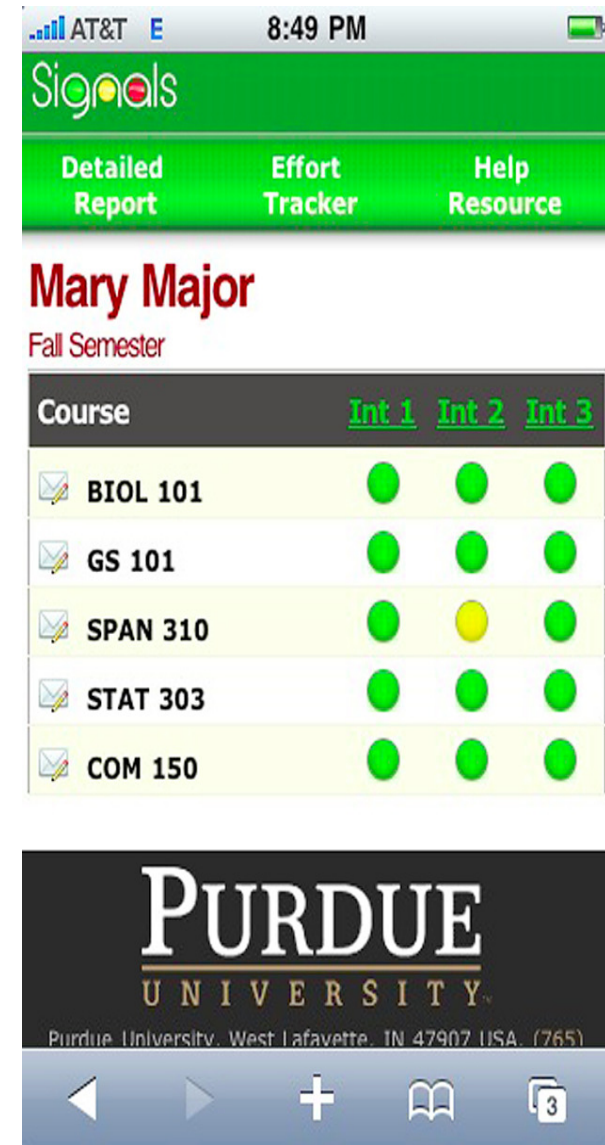


- Uses a predictive model based on
  - VLE activity and assessment scores
- Previous academic history and demographic data
- Has created an 'early warning' system which
  - Identifies students 'at risk' of not completing a course
  - Deploys an intervention to increase chances of success
- System automates the intervention process
  - Student gets 'traffic light' alert via VLE, and
  - an email/message suggesting corrective action

# Purdue University *Signals*: real time traffic-lights for students based on predictive model

“Results thus far show that students who have engaged with Course Signals have higher average grades and seek out help resources at a higher rate than other students.”

Pistilli, M. D., Arnold, K. and Bethune, M., Signals: Using Academic Analytics to Promote Student Success. *EDUCAUSE Review Online*, July/Aug., (2012).  
<http://www.educause.edu/ero/article/signals-using-academic-analytics-promote-student-success>





# Knewton (Arizona State Univ)

- A continuously adaptive online learning platform
- Logs data about student behaviour and performance (e.g. keystrokes, scores, speed, etc)



- Analyses behavioural and performance data, comparing it with similar students and assessing relevance of educational content to students
- Serves each individual student the most appropriate learning activity for them at a particular moment in time



AN HONORS UNIVERSITY IN MARYLAND

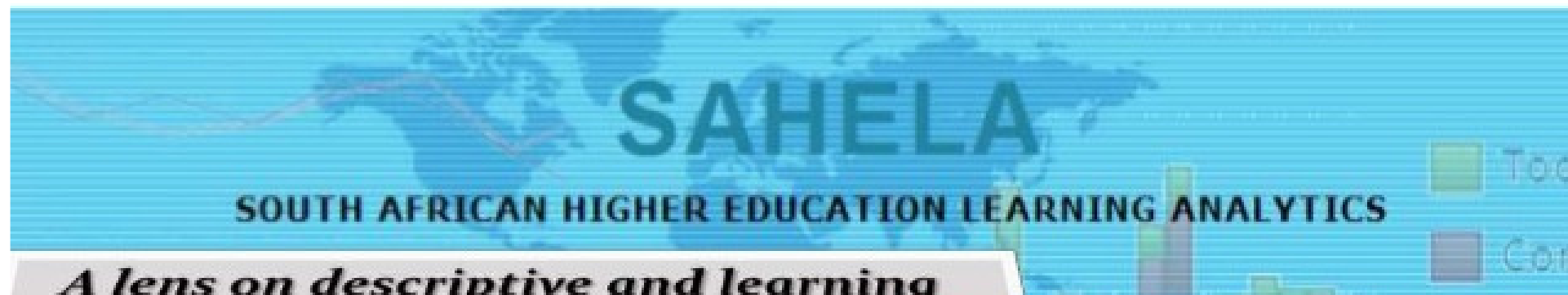
Distribution for SCI100\_3278\_F  
 For Gradebook Item: Nutrient Pol  
 For Studen  
 No Date Limit on A  
 Report Run On: October 3  
 Data Last Updated: October 3  
[Back to Blackboard R](#)

Note: Your grade is indicated in red.

Grade	Hits	Users	Avg. Hits Per User	Sessions	Avg. Sessions Per User
0	1079	11	98	88	8
4	170	1	170	15	15
6	105	1	105	11	11
7.5	78	1	78	7	7
8	186	1	186	18	18
8.5	1102	9	122	97	11
9	1976	12	165	163	14
9.5	2514	18	140	192	11
10	3467	23	151	304	13
10.	243	1	243	22	22
Total	10920	78	140	917	12



1:19 / 4:52



***A lens on descriptive and learning analytics at UNISA***

**Mr Glen Barnes & Mr Dion van Zyl**  
**Department of Institutional Statistics & Analytics**  
**Unisa**

**FROM DARK DATA TO STUDENT SUCCESS  
PUTTING STUDENTS AT THE CENTRE  
INTELLIGENCE AT THE TSHWANE  
UNIVERSITY OF TECHNOLOGY**

**Shafeeka Dockrat**

**Use of Data Warehouse &  
HEMIS data at Wits**

South African Higher Education Learning Analytics  
University of Pretoria 4 and 5 July 2013

**Data analytics to advance  
student success**

**Juan-Claude Lemmens, Ph.D.**

**Hearts and minds: Using  
student data to influence  
institutional culture and  
policy**

Presenter: Dr. André van Zyl, Director: Academic  
Development Centre  
July 2013





#Learning analytics as a digital Sorting Hat







<https://www.flickr.com/photos/uncloned/5370399502>

## **The New York Times**

The Web Means the End of Forgetting

## **The INDEPENDENT**

Facebook privacy law suit limited to 25,000 complainants after campaigner was overwhelmed with requests

## **Inside the Dark Web**

Twenty-five years after the world wide web was created, it is now caught in the greatest controversy of its existence: surveillance.

## **theguardian**

### **The death of privacy**

Google knows what you're looking for. Facebook knows what you like. Sharing is the norm, and secrecy is out. But what is the psychological and cultural fallout from the end of privacy?

## **COMPUTERWORLD**

Celebrity photos scandal a wake-up call for cloud users

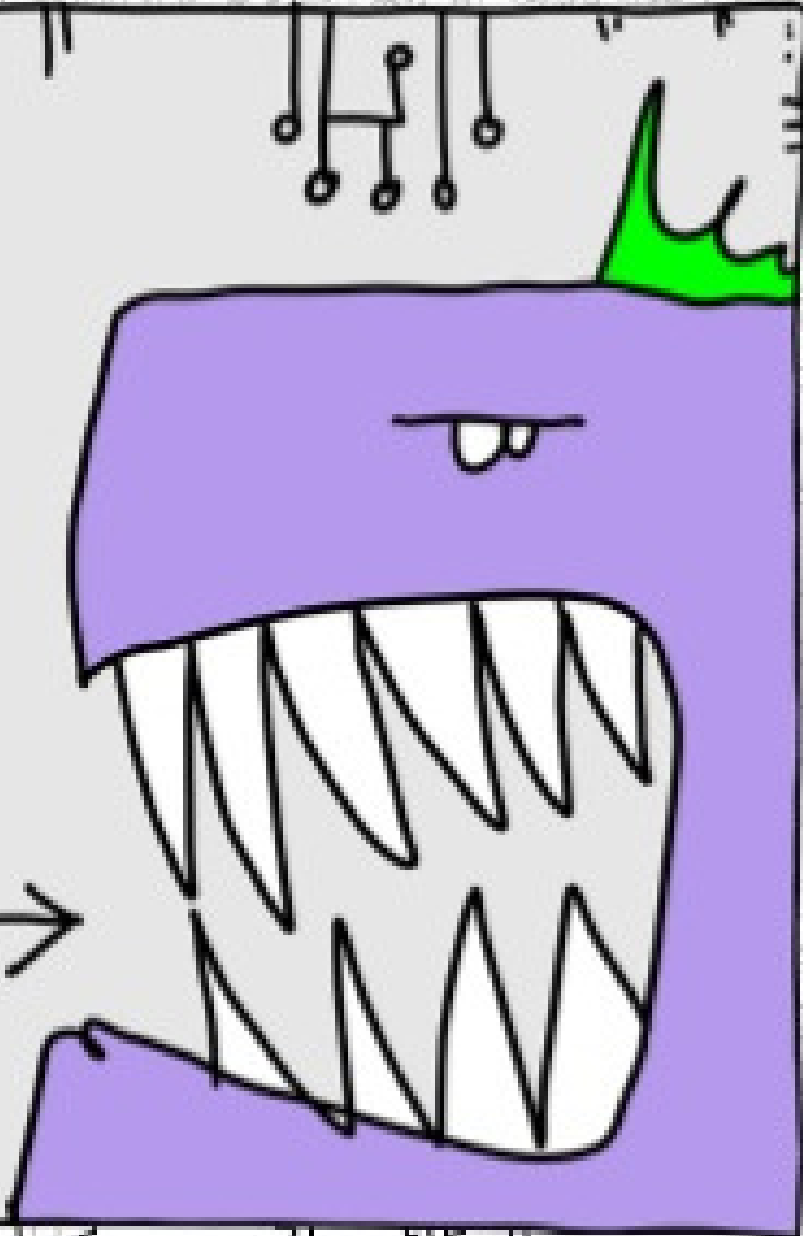




the Internet  
is like Nature:  
it's very, very  
big and it  
basically wants  
to kill you.

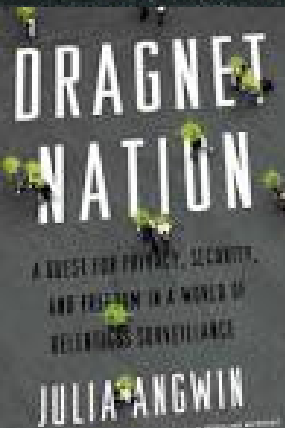
@gapingvoid

<https://www.youtube.com/watch?v=F7pYHN9iC9I>





POWER ON/OFF



<https://www.flickr.com/photos/zigazou76/5824384001/sizes/z>





s://www.flickr.com/photos/jes8jes/9655367348



# Developing new policy

Drawing upon existing practice, existing literature

No comparable policy  
within HE sector



Sharon Slade and Paul Prinsloo, "Learning Analytics: Ethical Issues and Dilemmas," in *American Behavioral Scientist*, Vol. 57, 2013, p. 1514. doi: 10.1177/0002764213479366

# New OU policy for the ethical use of learning analytics

**Principle 1:** Learning analytics is a moral practice, which should align with core organisational principles.



**Principle 2:** The OU has a responsibility to all stakeholders to use and extract meaning from student data for the benefit of students where feasible.

**Principle 3:** Students are not wholly defined by their visible data or our interpretation of that data.

**Principle 4:** The purpose and the boundaries regarding the use of learning analytics should be well defined and visible.



**Principle 5:** The OU should aim to be transparent regarding data collection, and provide students with the opportunity to update their own data and consent agreements at regular intervals.

**Principle 6:** Students should be engaged as active agents in the implementation of learning analytics (e.g. informed consent, personalised learning paths, interventions).

**Principle 7:** Modelling and interventions based on analysis of data should be sound and free from bias.

**Principle 8:** Adoption of learning analytics within the OU requires broad acceptance of the values and benefits (organisational culture) and the development of appropriate skills across the organisation.



the strive for clarity

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transparency of purpose



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## Privacy Settings ▸ Applications and Websites

## ◀ Applications and Websites

Instant  
on selectYou'll find  
-- Docs  
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personaliz

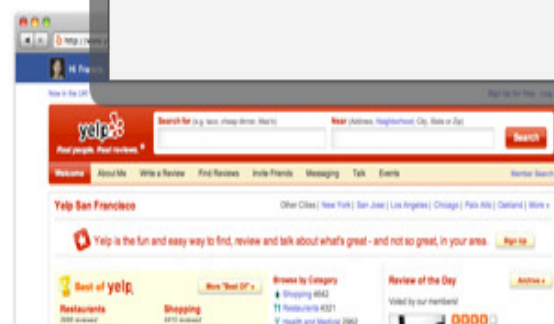
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you'll see a notification from



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☒ Allow select partners to instantly personalize their features with my public information when I first arrive on their websites.

Please keep in mind that if you opt out, your friends may still share public Facebook information about you to personalize their experience on these partner sites unless you block the application. [Learn more.](#)



getting the balance right

<http://www.educause.edu/ero/article/learning-analytics-and-ethics-framework-beyond-utilitarianism>

<https://www.flickr.com/photos/pie4dan/4567311801>