



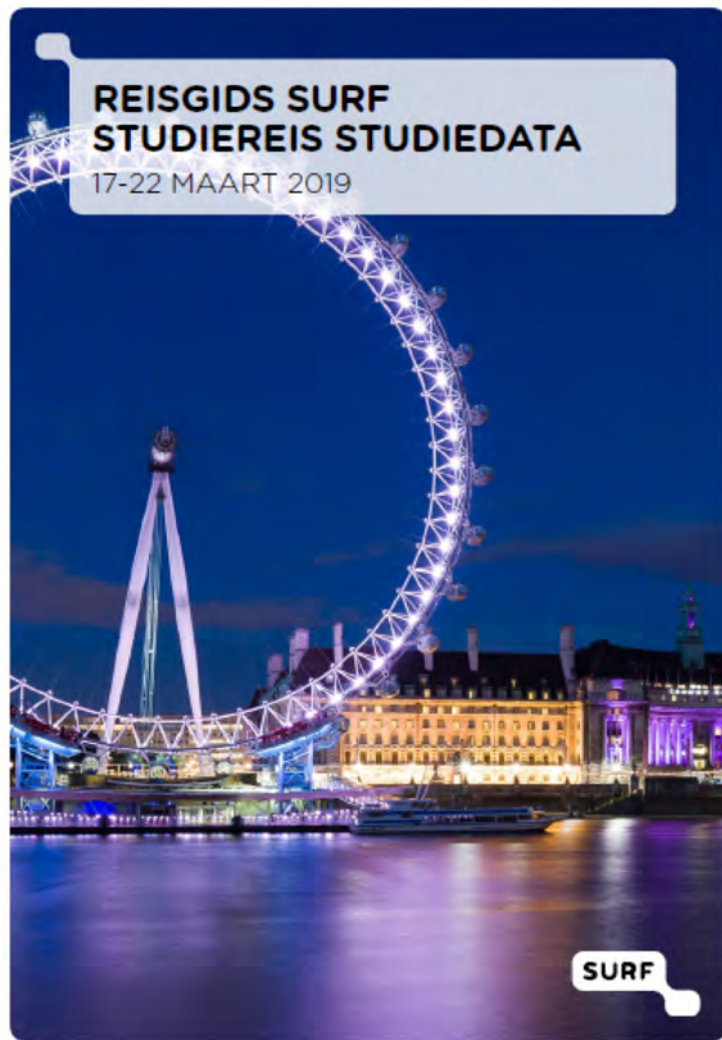
The Open
University



@DrBartRienties
Professor of Learning Analytics

Kevin Mayles
Head of Quality Enhancement and LA

Prof John Dominigue
Head to Knowledge Media Institute



Programme of today

845-900 Coffee and informal gathering

900-930 Basic intro to learning analytics by Prof Bart Rienties

930-945 Formal welcome by Dr Liz Marr (PVC Students)

945-1015 Strategic vision and where are we now by Kevin Mayles

1015-1045 OU Analyse and where are we going by Prof John Dominigue

1045-1200 Open discussion

1200-1300 Lunch and further discussion

1300-1400 Wrap up by SURF and internal discussion

“The UK experience”: Health and Safety

- No fire drill today 😊
- Toilets
- Jennie Lee Building
- Wifi: Eduroam or free open iCloud

A special thanks to Avinash Boroowa, Shi-Min Chua, Simon Cross, Doug Clow, Chris Edwards, Rebecca Ferguson, Mark Gaved, Christothea Herodotou, Martin Hlosta, Wayne Holmes, Garron Hillaire, Simon Knight, Nai Li, Vicky Marsh, Kevin Mayles, Jenna Mittelmeier, Vicky Murphy, Quan Nguuyen, Tom Olney, Lynda Prescott, John Richardson, Saman Rizvi, Jekaterina Rogaten, Matt Schencks, Mike Sharples, Dirk Tempelaar, Belinda Tynan, Lisette Toetenel, Thomas Ullmann, Denise Whitelock, Zdenek Zdrahal, and others...



(Social) Learning Analytics

“LA 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” (LAK 2011)

Social LA “focuses on how learners build knowledge together in their cultural and social settings” (Ferguson & Buckingham Shum, 2012)



What is the first word that comes to mind when you hear learning analytics?

I think that the OU UK is world-leading in learning analytics

1 Totally disagree

2 Disagree

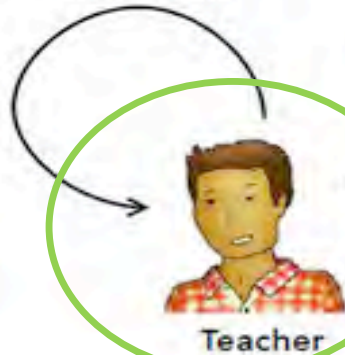
3 Neutral

4 Agree

5 Totally agree

N/A I would not be
able to tell you this

Reflection



feedback on group performance

choose indicators

Monitoring Visualization-Dashboard



Learning Analytics:

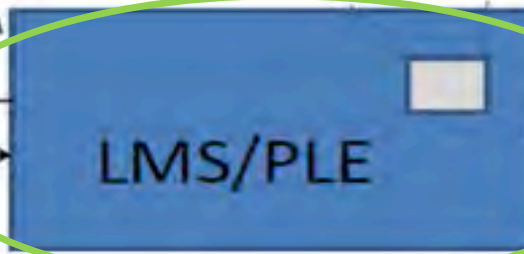
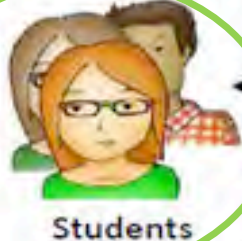
e.g. time spent, areas of interest, usage of resources, participation rates, correlation with grades



Change of e-teaching method?

receptive learning:
observe, read,
download ...

active learning:
participate, write,
collaborate ...



logging



Reflection



Teacher

feedback on group performance
choose indicators

Monitoring Visualization-Dashboard



Learning Analytics:

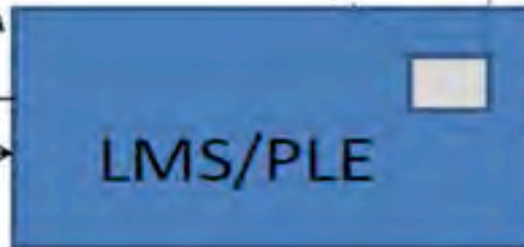
e.g. time spent, areas of interest, usage of resources, participation rates, correlation with grades



Students

receptive learning:
observe, read,
download ...

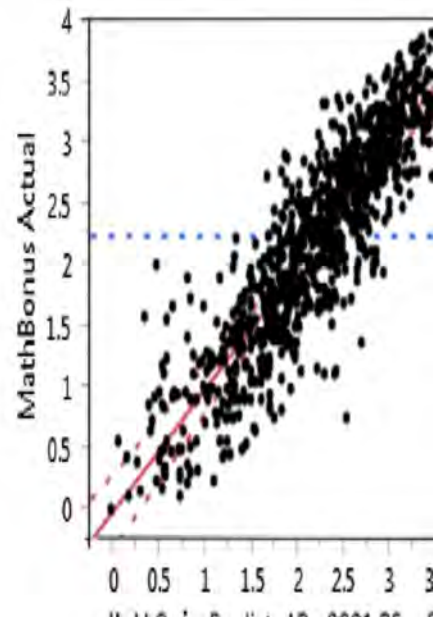
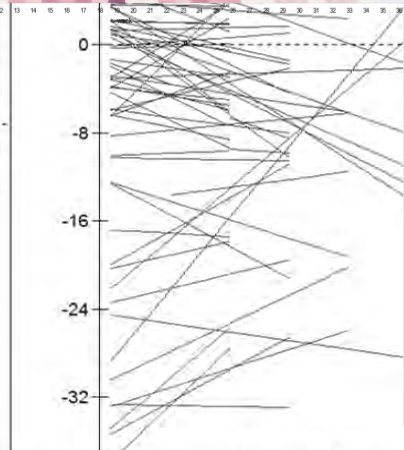
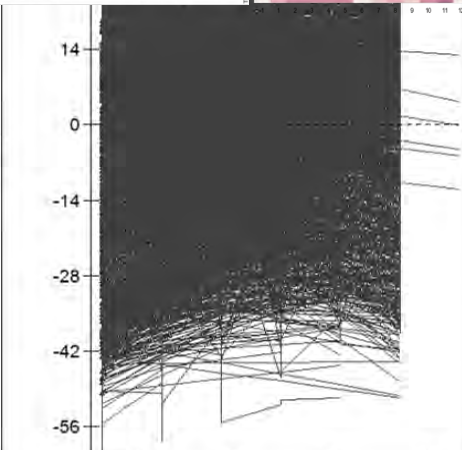
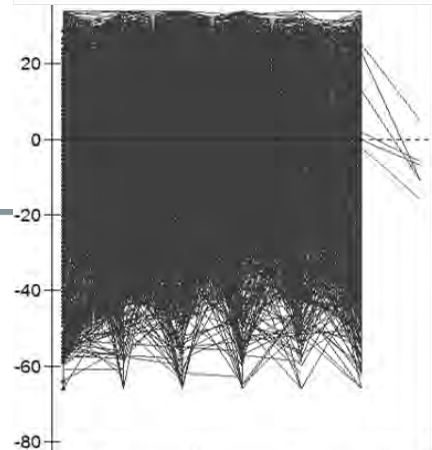
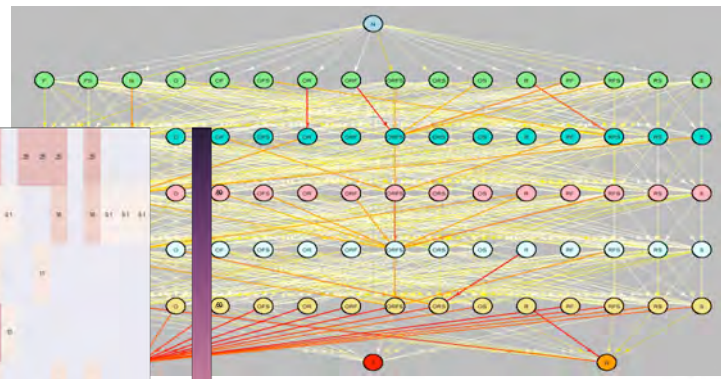
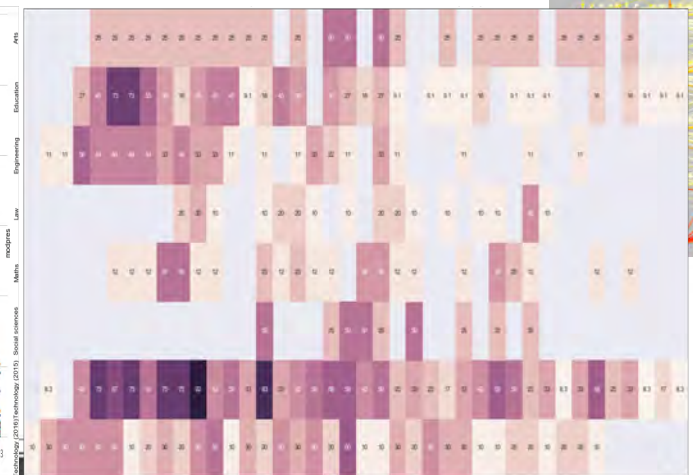
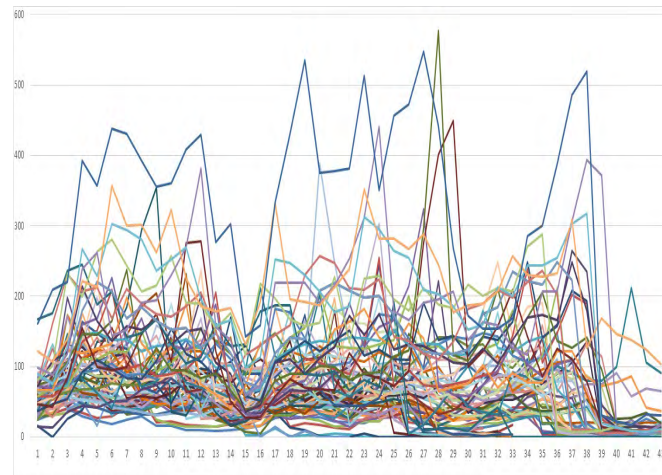
active learning:
participate, write,
collaborate ...



logging



Big Data is messy!!!



It's everywhere



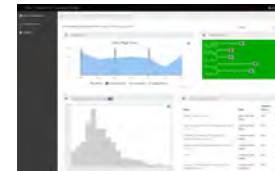
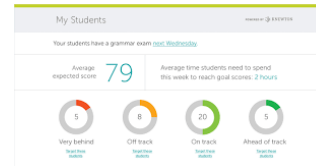
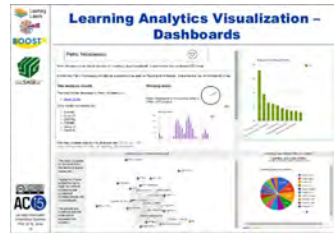
Learning Analytics Dashboards



STUDENT ACTIVITY METER



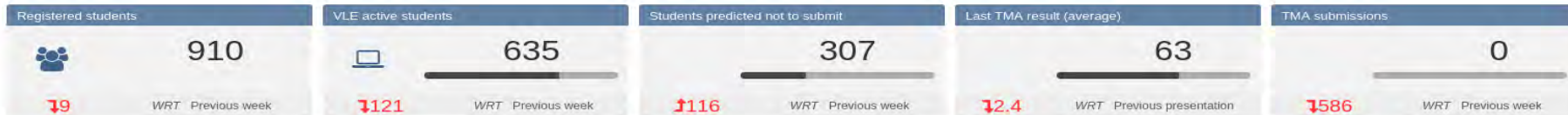
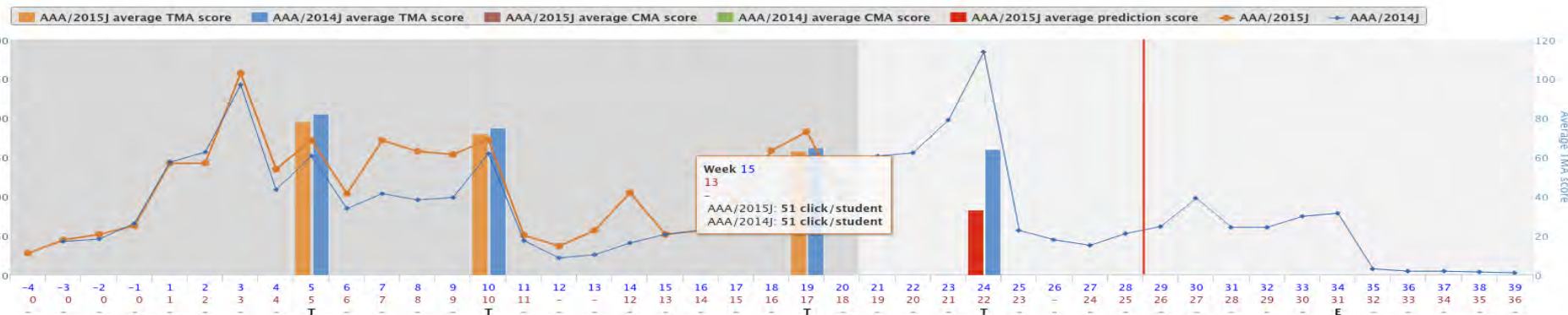
Course Signal



AAA 2015J - Week 20

Time machine (choose week):

20



25 ▾ Export Select columns ▾

Student PI	Name	TMA	Risk of non-submission	Next TMA prediction	Next TMA grade prediction	Risk of Failure	Final result prediction	Final result
A0000194	Flores Joseph	71 NS NS	<div style="width: 100%;"></div>	Not submit	Not Submit	<div style="width: 100%;"></div>	Fail	Fail: no resit
A0000251	Taylor Raymond	76 84 72	<div style="width: 20%;"></div>	Submit	Fail	<div style="width: 20%;"></div>	At risk	Pass
A0000305	Thomas George	98 98 90	<div style="width: 100%;"></div>	Not submit	Not Submit	<div style="width: 20%;"></div>	At risk	Pass
A0000511	Allen Patrick	97 97 95	<div style="width: 100%;"></div>	Submit	Fail	<div style="width: 10%;"></div>	Pass	Distinction
A0000653	Jones Robert	95 94 88	<div style="width: 100%;"></div>	Submit	Fail	<div style="width: 20%;"></div>	Pass	Pass
A0000658	James Catherine	93 93 97	<div style="width: 100%;"></div>	Submit	Fail	<div style="width: 20%;"></div>	Pass	Distinction
A0000742	Turner Timothy	91 90 74	<div style="width: 100%;"></div>	Submit	Fail	<div style="width: 100%;"></div>	At risk	Pass

Prof Paul Kirschner (OU NL)

“Learning analytics: Utopia or dystopia”, LAK 2016 conference



“I’m searching for my keys.”

Web of Science

Results Analysis

<<Back to previous page

Showing 1,511 records for TOPIC: ("learning analytics")

[Create Citation Report](#)

Web of Science Categories

Publication Years

Document Types

Organizations-Enhanced

Funding Agencies

Authors

Source Titles

Book Series Titles

Meeting Titles

Countries/Regions

Editors

Group Authors

Languages

Research Areas

Visualization **Treemap**

Number of results **10**

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Sort by **Record count**

Show **25**

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Select records to view, or exclude. Choose "View records" to view the selected records only or "Exclude records" to view the unselected records only.

Select Field: Organizations-Enhanced

Record Count

% of 1,511

Bar Chart

Citation report for 41 results from Web of Science Core Collection between 2010 and 2018 Go

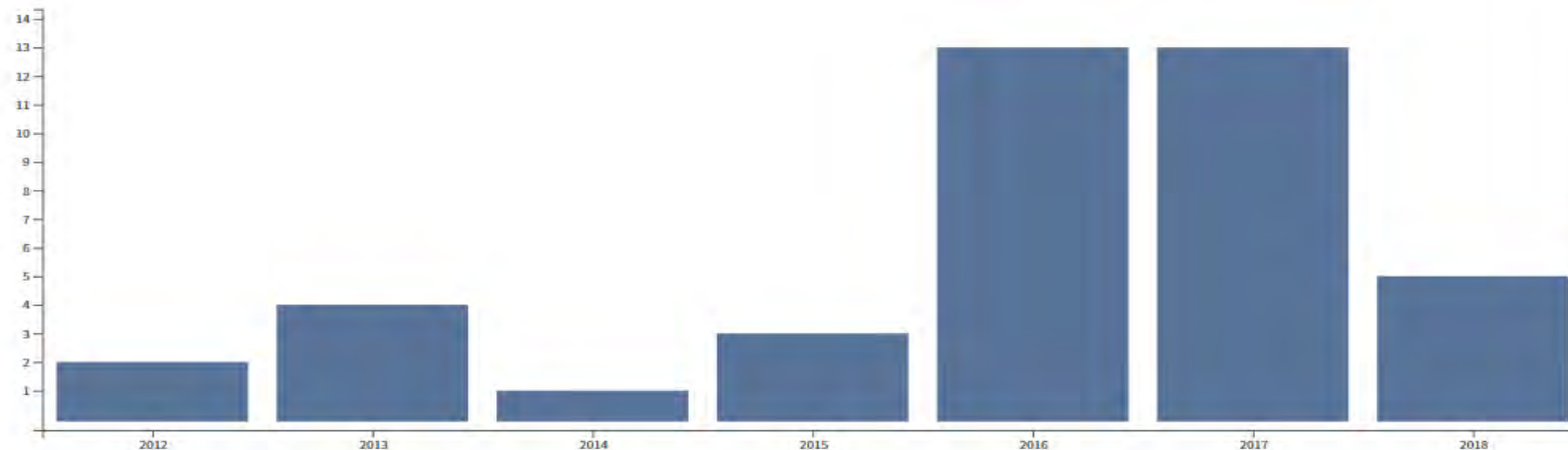
You searched for: TOPIC: ("learning analytics") ...More

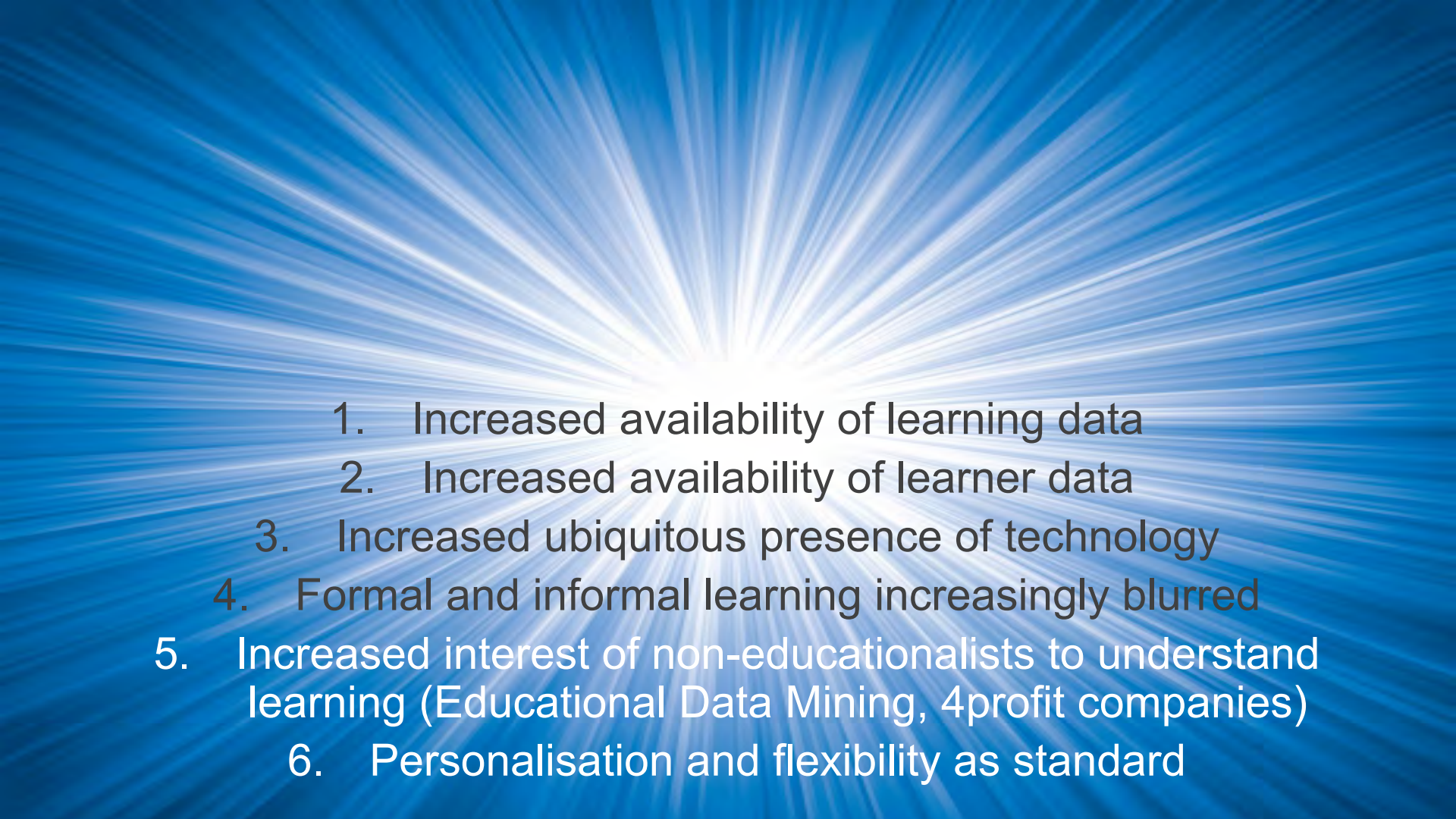
This report reflects citations to source items indexed within Web of Science Core Collection. Perform a Cited Reference Search to include citations to items not indexed within Web of Science Core Collection.

Export Data: Save to Excel File

Total Publications

41 Analyze



- 
1. Increased availability of learning data
 2. Increased availability of learner data
 3. Increased ubiquitous presence of technology
 4. Formal and informal learning increasingly blurred
 5. Increased interest of non-educationalists to understand learning (Educational Data Mining, 4profit companies)
 6. Personalisation and flexibility as standard



Learning Design is described as “a methodology for enabling teachers/designers to make more informed decisions in how they go about designing learning activities and interventions, which is pedagogically informed and makes effective use of appropriate resources and technologies” (Conole, 2012).

Open University Learning Design Initiative (OULDI)

	Assimilative	Finding and handling information	Communication	Productive	Experiential	Interactive/ Adaptive	Assessment
Type of activity	Attending to information	Searching for and processing information	Discussing module related content with at least one other person (student or tutor)	Actively constructing an artefact	Applying learning in a real-world setting	Applying learning in a simulated setting	All forms of assessment, whether continuous, end of module, or formative (assessment for learning)
Examples of activity	Read, Watch, Listen, Think about, Access, Observe, Review, Study	List, Analyse, Collate, Plot, Find, Discover, Access, Use, Gather, Order, Classify, Select, Assess, Manipulate	Communicate, Debate, Discuss, Argue, Share, Report, Collaborate, Present, Describe, Question	Create, Build, Make, Design, Construct, Contribute, Complete, Produce, Write, Draw, Refine, Compose, Synthesise, Remix	Practice, Apply, Mimic, Experience, Explore, Investigate, Perform, Engage	Explore, Experiment, Trial, Improve, Model, Simulate	Write, Present, Report, Demonstrate, Critique

Conole, G. (2012). *Designing for Learning in an Open World*. Dordrecht: Springer.

Rienties, B., Toeteneel, L., (2016). The impact of learning design on student behaviour, satisfaction and performance: a cross-institutional comparison across 151 modules. *Computers in Human Behavior*, 60 (2016), 333-341

Hours spent undertaking each type of activity

Design stages

Initial

Specification (REPO3)

Draft (D2)

Final

Copy and replace:

Initial → Specification

Specification → Draft

Draft → Final

Workload tool → Initial

Workload tool → Specification

Workload tool → Draft

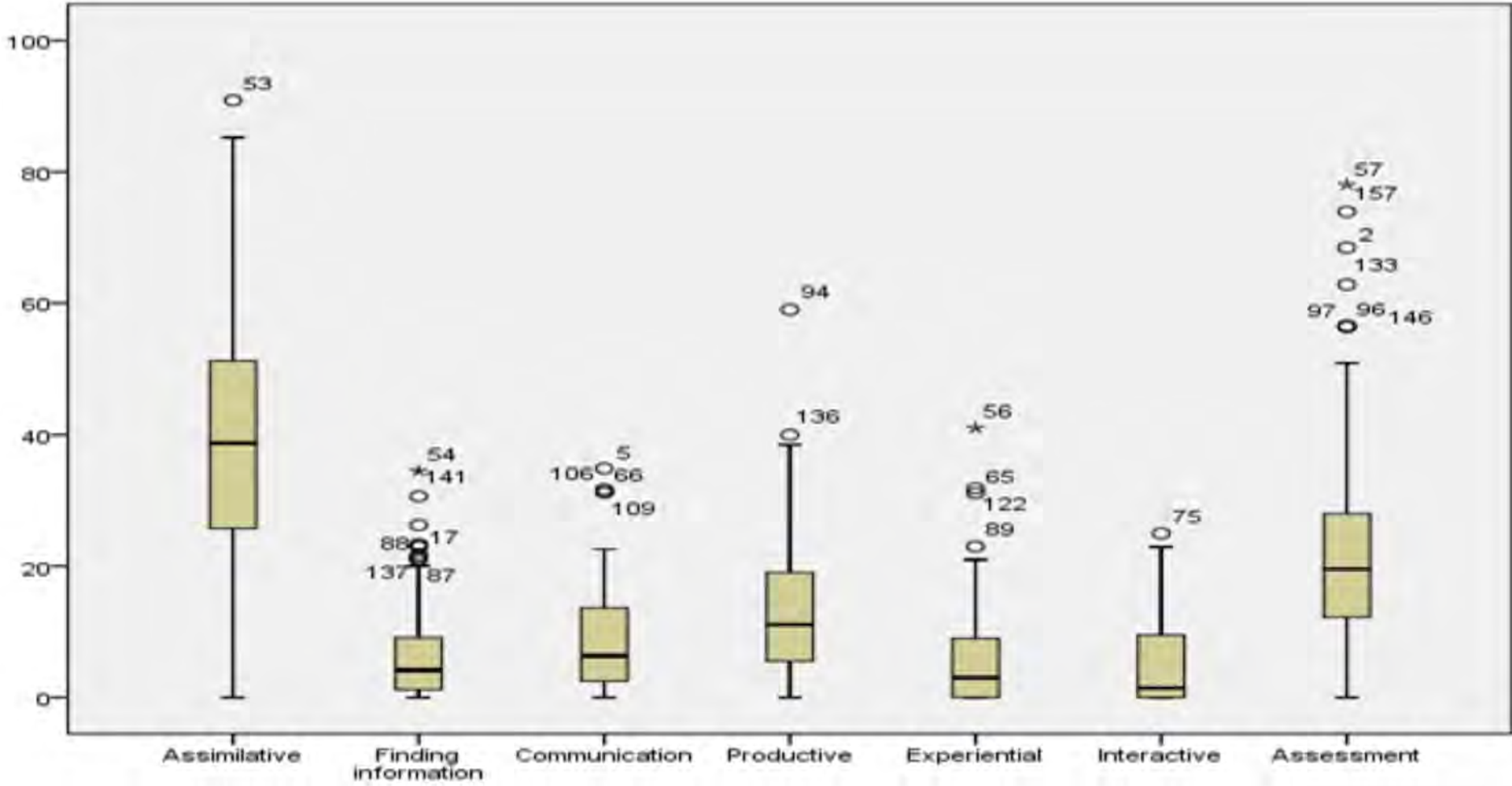
Workload tool → Final

Week	Assimilative	Finding and handling information	Communication	Productive	Experiential	Interactive / Adaptive	Assessment	Total hours
Week 1	10	1.5	1	0.6	0	0	0.2	13.30
Week 2	6.1	0	0.5	0.6	2	0	6.2	15.40
Week 3	6.1	0	0	2.2	2.85	0	3.5	14.65
Week 4	0	0	0	0	0	0	0	0
Week 5	5.8	0	0	0	19.1	0	10.9	35.85
Week 6	13.5	0	0	3.55	4.3	0	1.8	23.15
Week 7	7.25	0.4	0	1	0.7	0	3.3	12.65
Week 8	5.79	0	0	0	0	0	9.3	15.09
Week 9	10.5	0	0	3	0.1	0	2.5	16.16
Week 10	6.31	0	0.5	0.35	0.7	0	2.65	10.51
Week 11	7.46	4	0	2.1	0	0	3.2	16.76
Week 12	5.69	0	0	1.3	0.35	0.5	1.8	9.64
Week 13	7.43	0.65	0	2.8	0.6	0	1.6	13.08

Avg: 12.16, StDv: 6.28 [Hide guides](#)

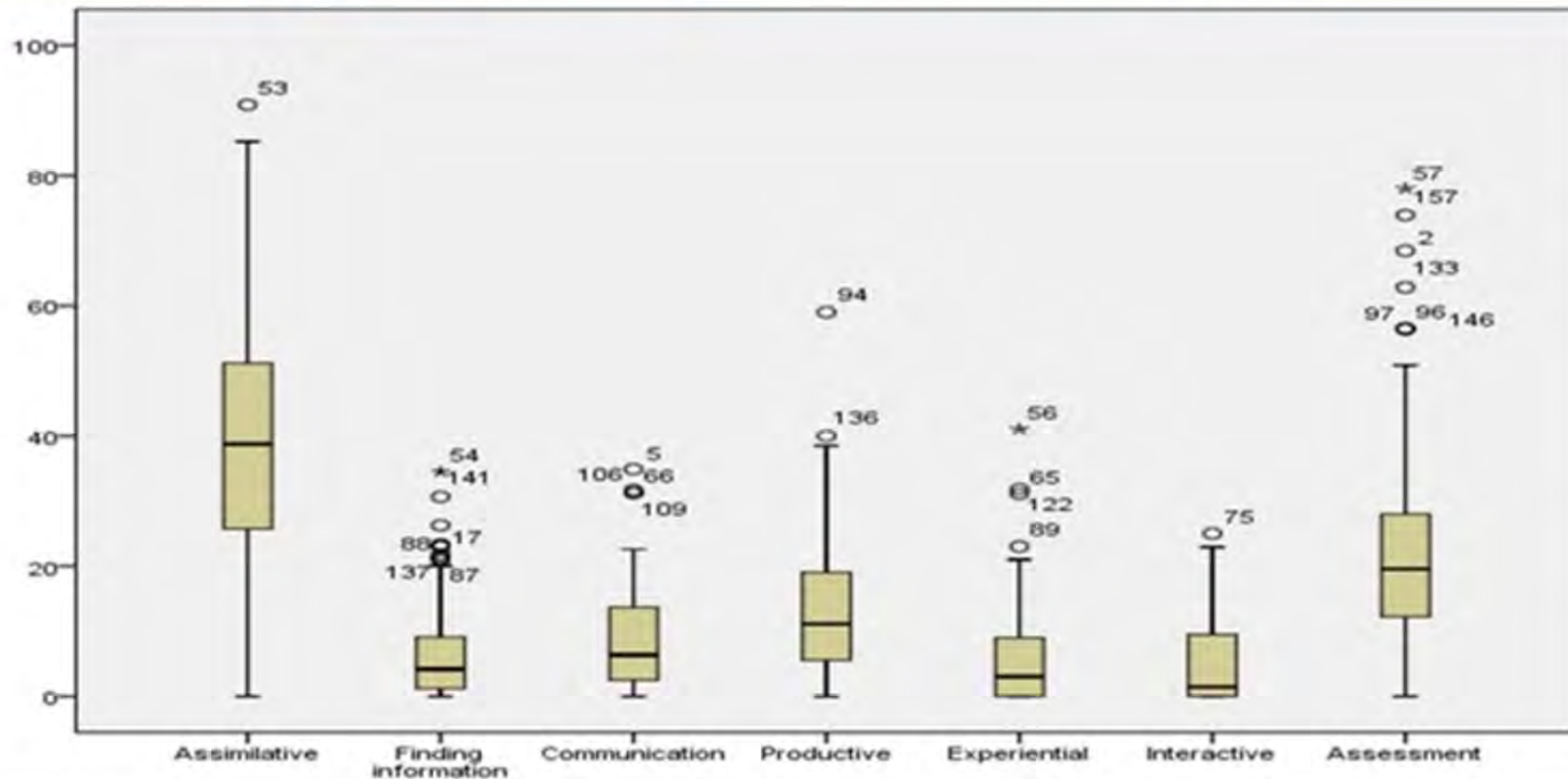
Merging big data sets

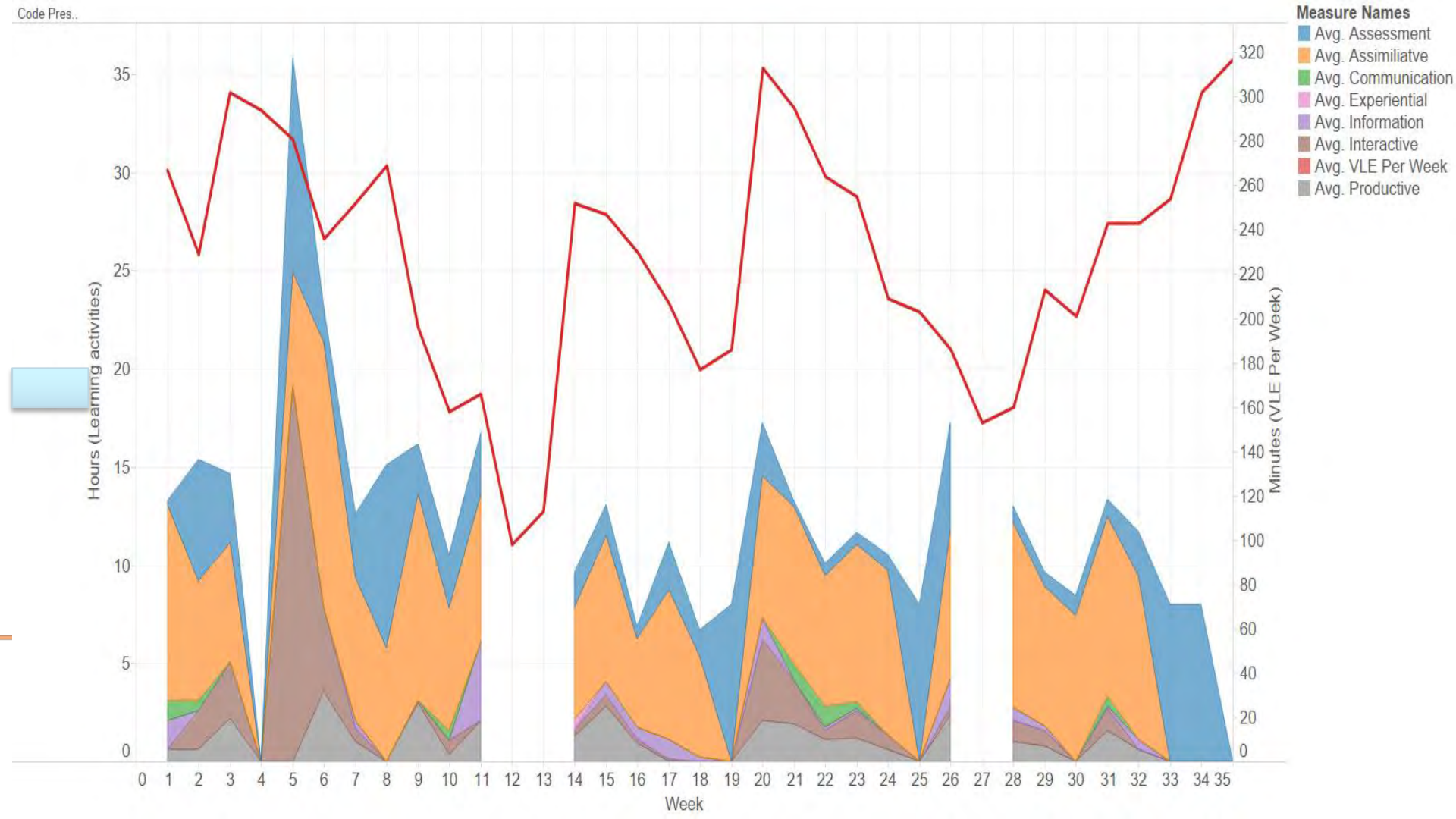
- Learning design data (>300 modules mapped)
- VLE data
 - >140 modules aggregated individual data weekly
 - >37 modules individual fine-grained data daily
- Student feedback data (>140)
- Academic Performance (>140)
- Predictive analytics data (>40)
- Data sets merged and cleaned
 - 111,256 students undertook these modules



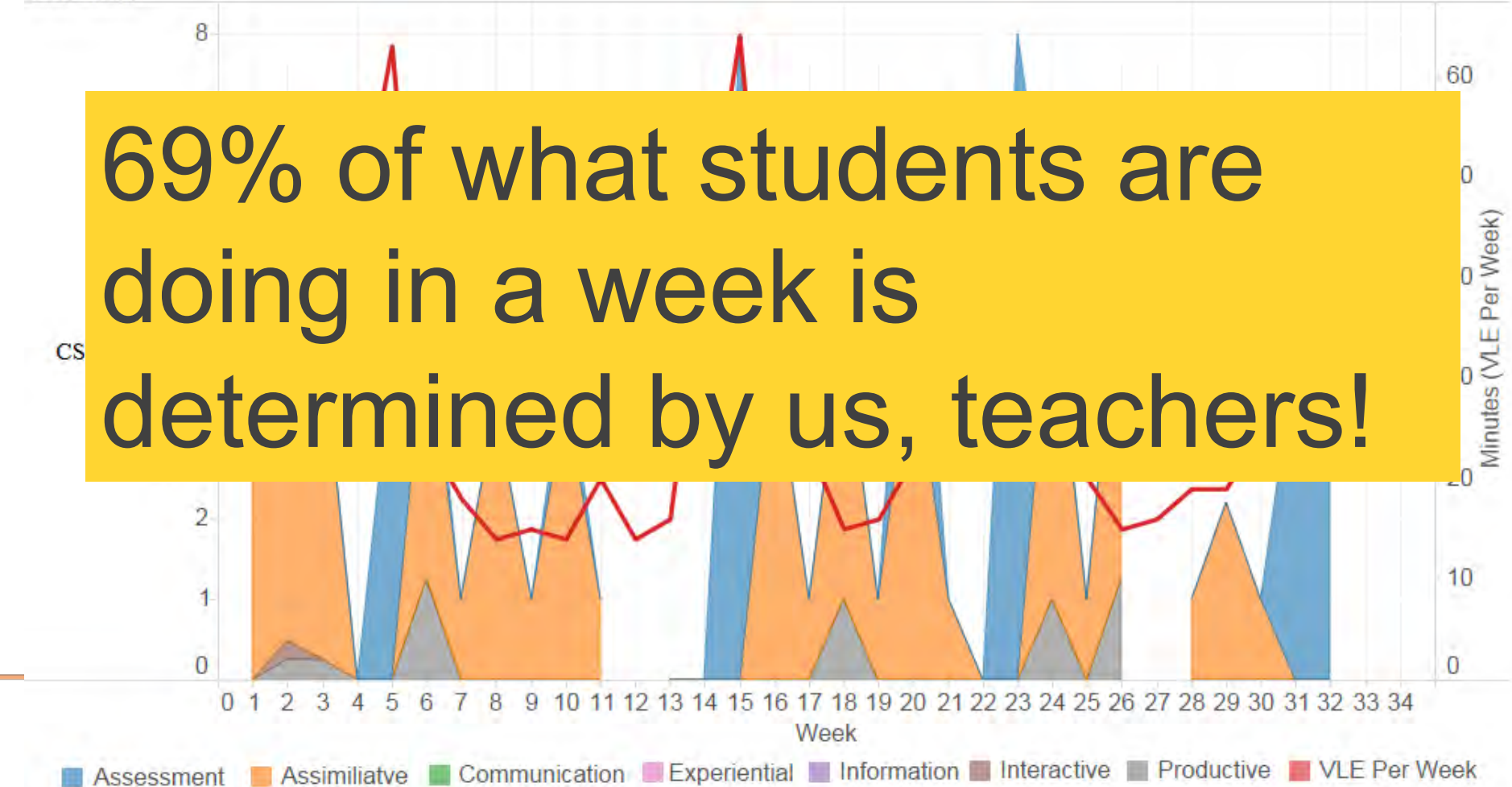
Toeteneel, L., Rienties, B. (2016). Analysing 157 Learning Designs using Learning Analytic approaches as a means to evaluate the impact of pedagogical decision-making. *British Journal of Educational Technology*, 47(5), 981–992.

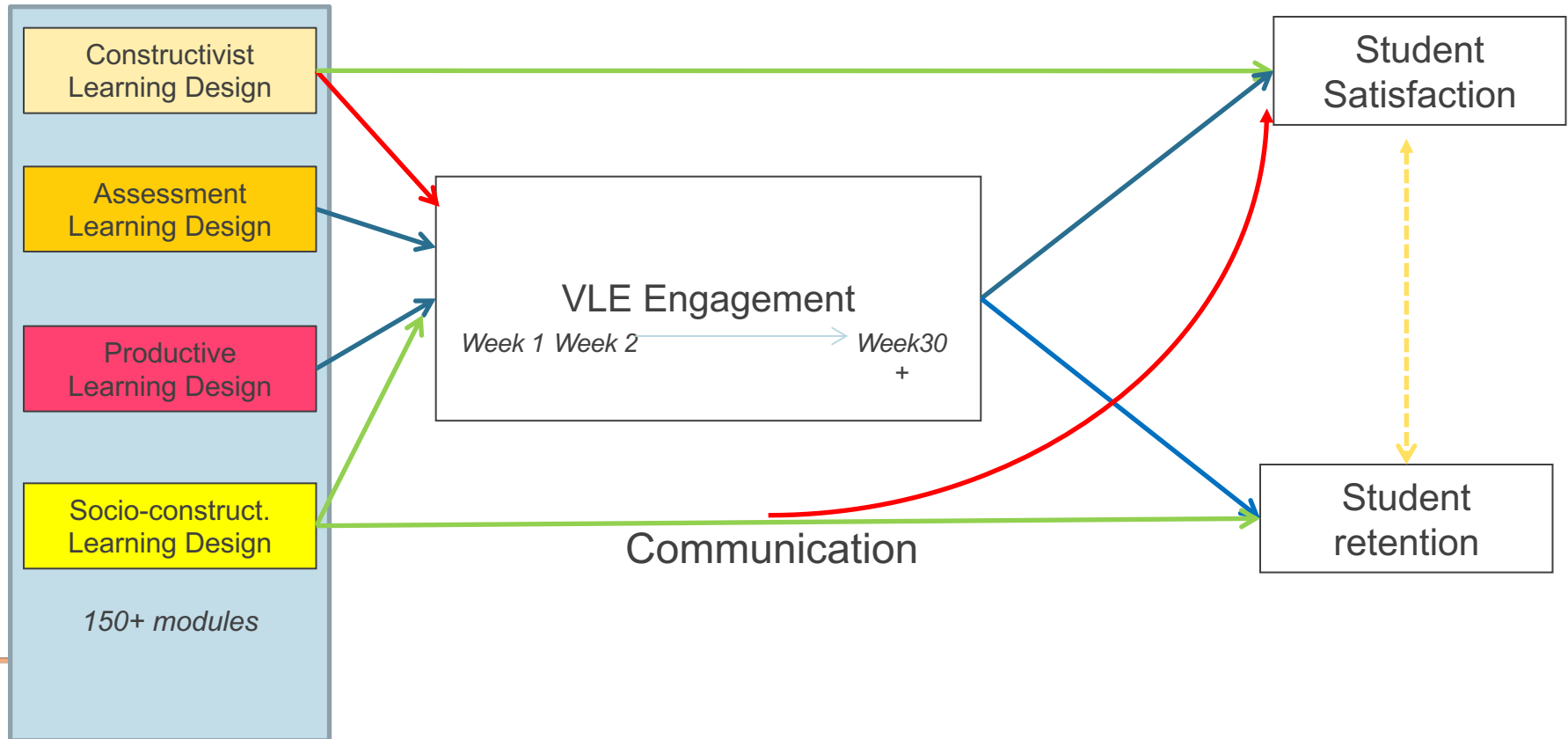
A "typical" course at my own institution would look like?





69% of what students are doing in a week is determined by us, teachers!

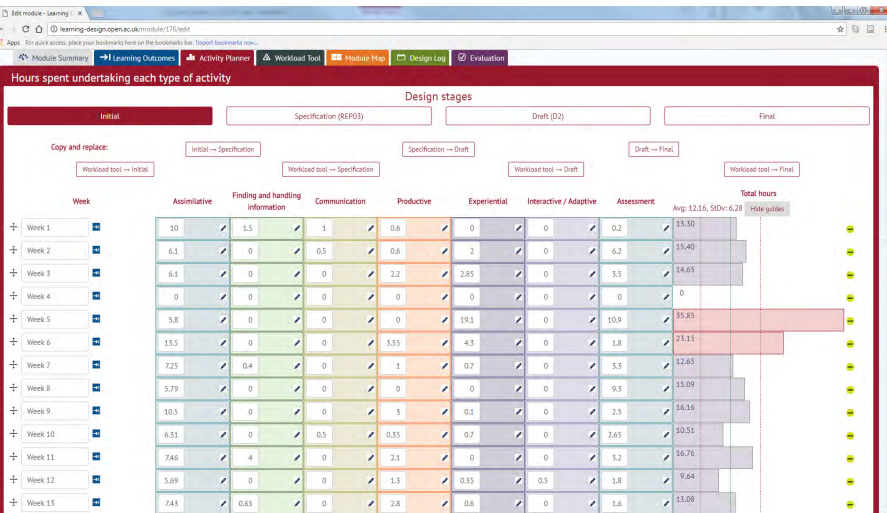


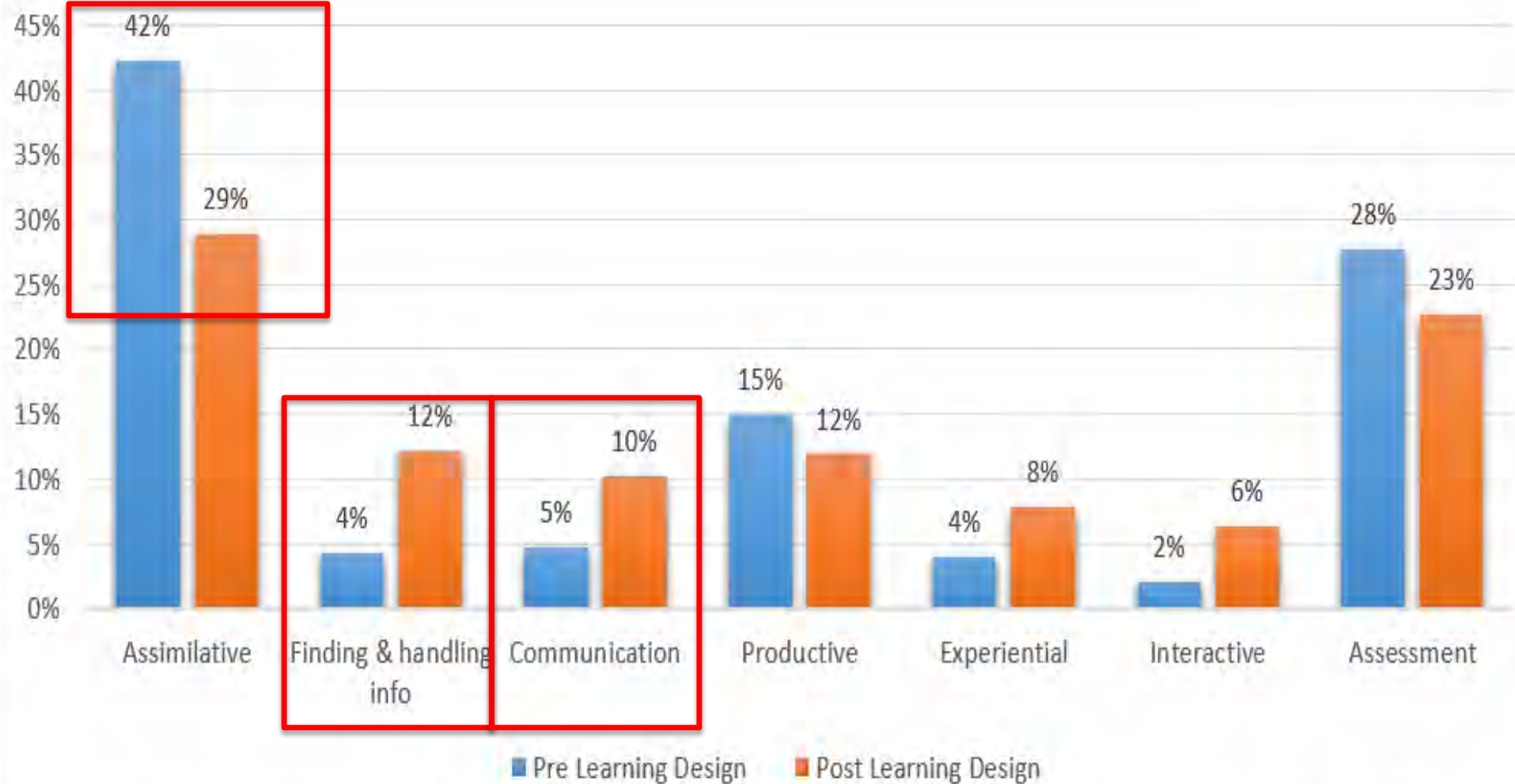


Rienties, B., Toeteneel, L., (2016). The impact of learning design on student behaviour, satisfaction and performance: a cross-institutional comparison across 151 modules. *Computers in Human Behavior*, 60 (2016), 333-341

Nguyen, Q., Rienties, B., Toeteneel, L., Ferguson, R., Whitelock, D. (2017). Examining the designs of computer-based assessment and its impact on student engagement, satisfaction, and pass rates. *Computers in Human Behavior*. DOI: 10.1016/j.chb.2017.03.028.

So what happens when you give learning design visualisations to teachers?





Conclusions and moving forwards

1. Teachers and professional development key in world of learning analytics
2. Learning design and teachers strongly influences student engagement, satisfaction and performance
3. Learning analytics can be quite powerful to understand complexities of learning in- and outside class

Conclusions and moving forwards

1. Learning analytics approaches can help OU SL researchers and practitioners to test and validate **big and small** theoretical questions
2. The OU is open for any collaborations or any wild ideas 😊