

Learning analytics: implementing an institution wide strategy

JISC Networking Event 22nd June 2016

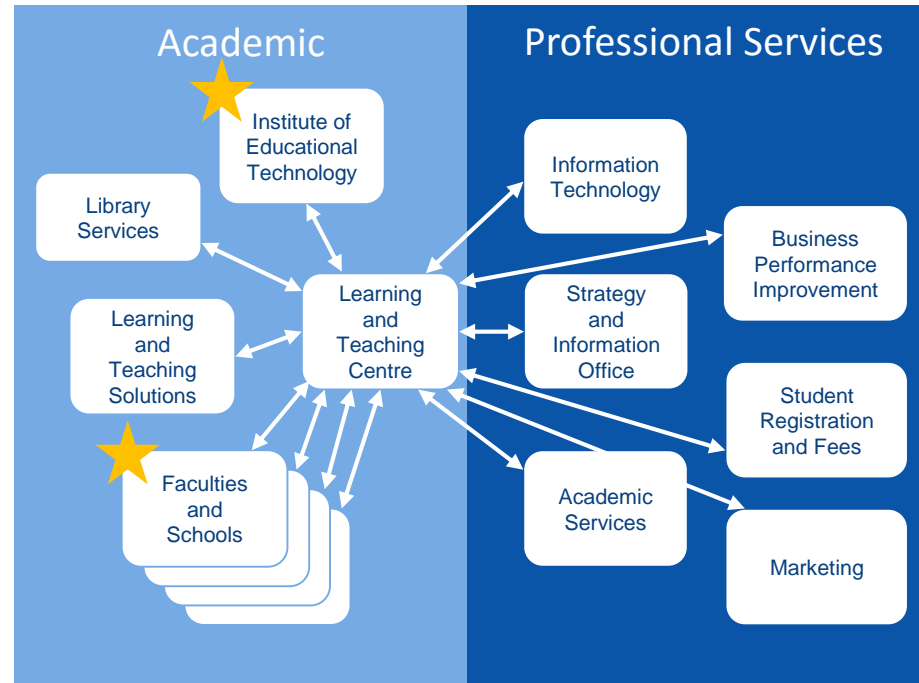
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Kevin Mayles, Head of Analytics, The Open University

.....
Life-changing Learning
.....

Learning Analytics @ The Open University

Where are you from?

- PVC Learning & Teaching
- CIO / IT
- Planning Office
- Student Support
- Faculty



Learning Analytics @ The Open University



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- CIO / IT
- Planning Office
- Student Support
- Faculty



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OU Context

2014/15

174k students

The average age of our new undergraduate students is 29

40% new undergraduates have 1 A-Level or lower on entry

Over 21,000 OU students have disabilities

868k assessments submitted, 395k phone calls and 176k emails received from students



Analytics for student success vision



A clear vision statement was developed to galvanise effort across the institution on the focused use of analytics

Vision

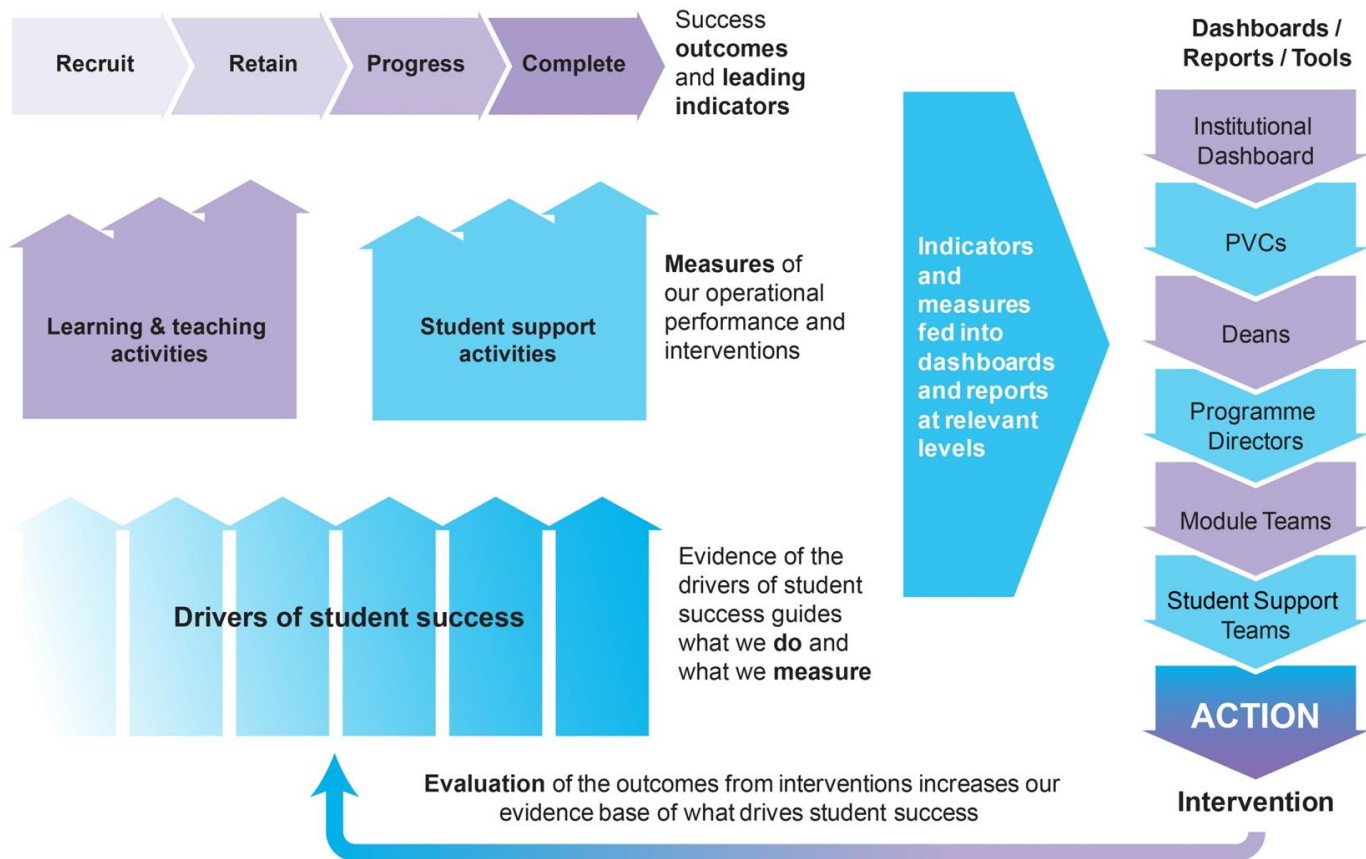
To use and apply information strategically (through specified indicators) to retain students and progress them to complete their study goals

Mission

This needs to be achieved at :

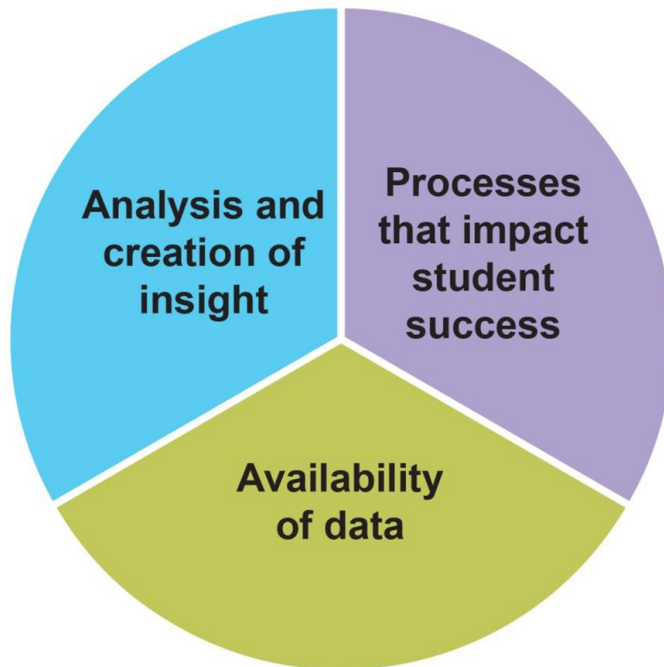
- a **macro level** to aggregate information about the student learning experience at an institutional level to inform strategic priorities that will improve student retention and progression
- a **micro level** to use analytics to drive short, medium and long-term interventions

Vision in action

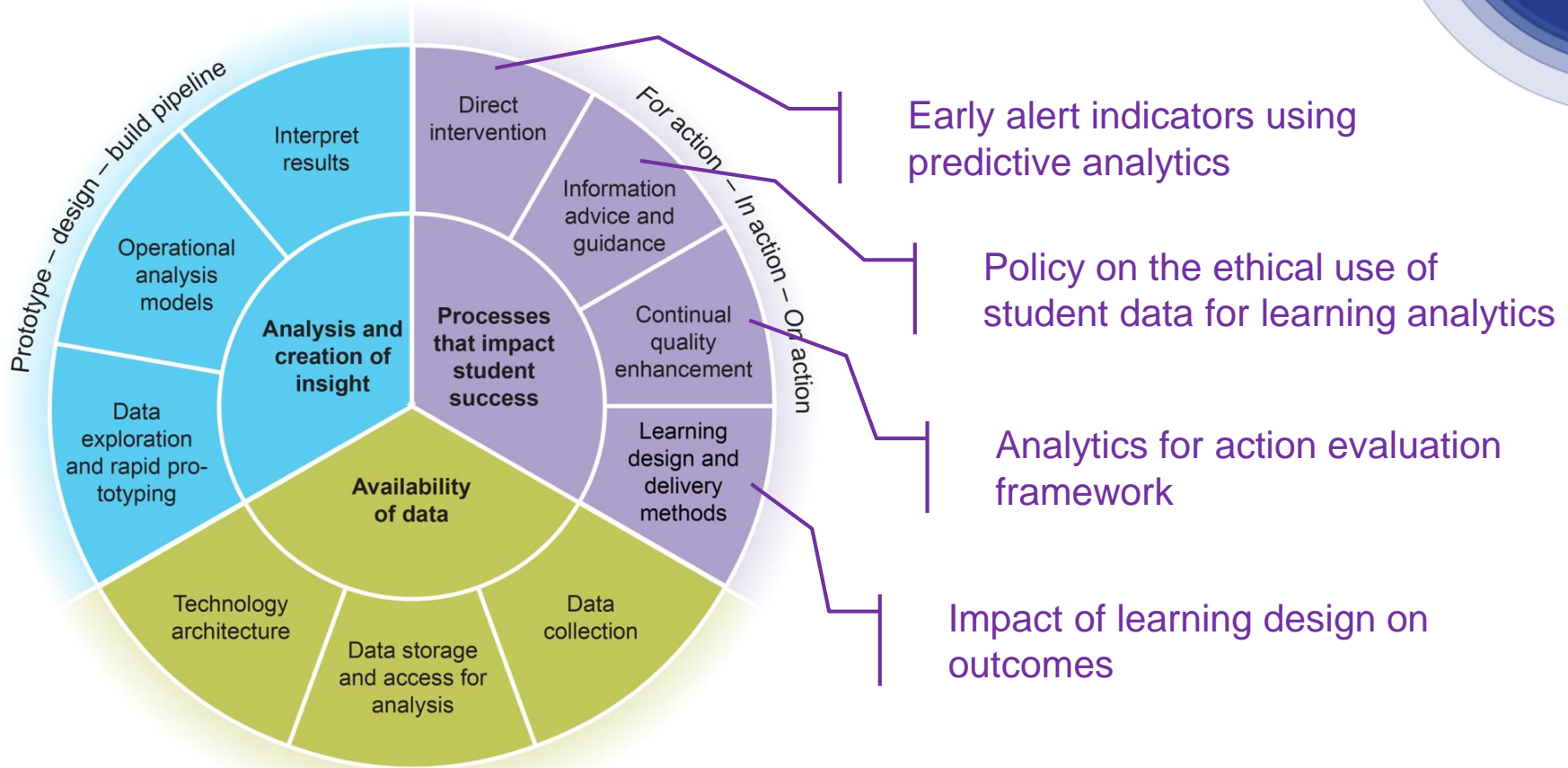


Analytics enhancement strategy

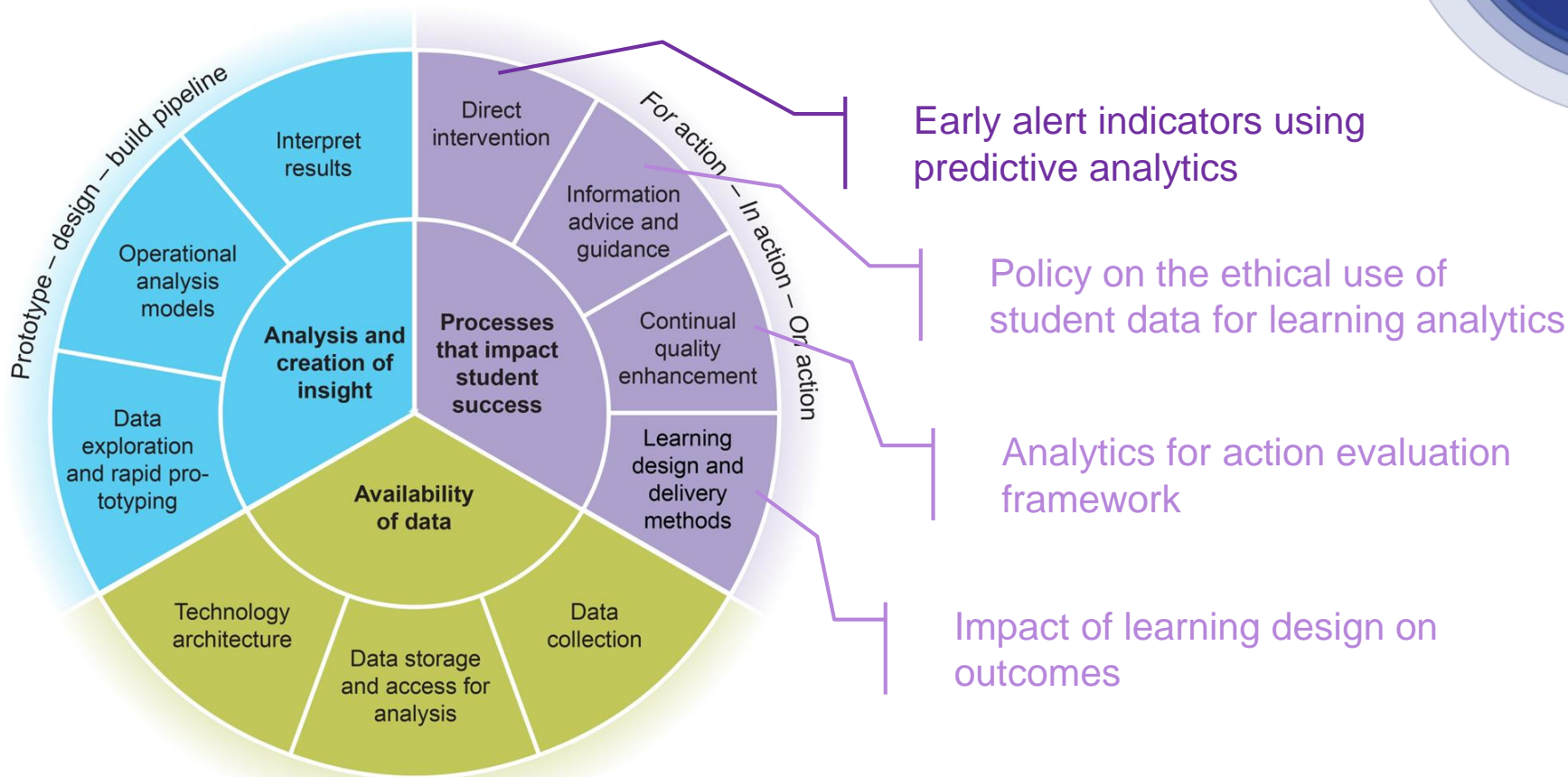
The OU recognises that three equally important strengths are required for the effective deployment of analytics



Analytics enhancement strategy

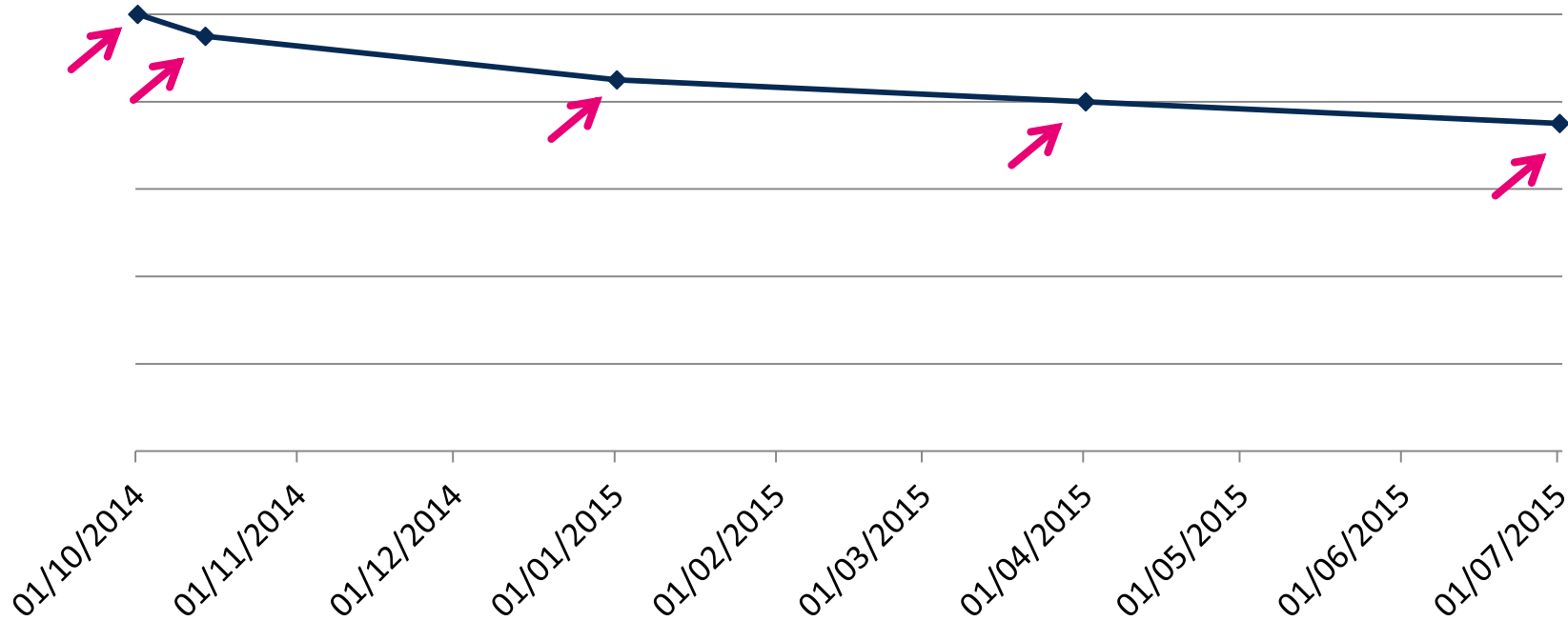


Analytics enhancement strategy



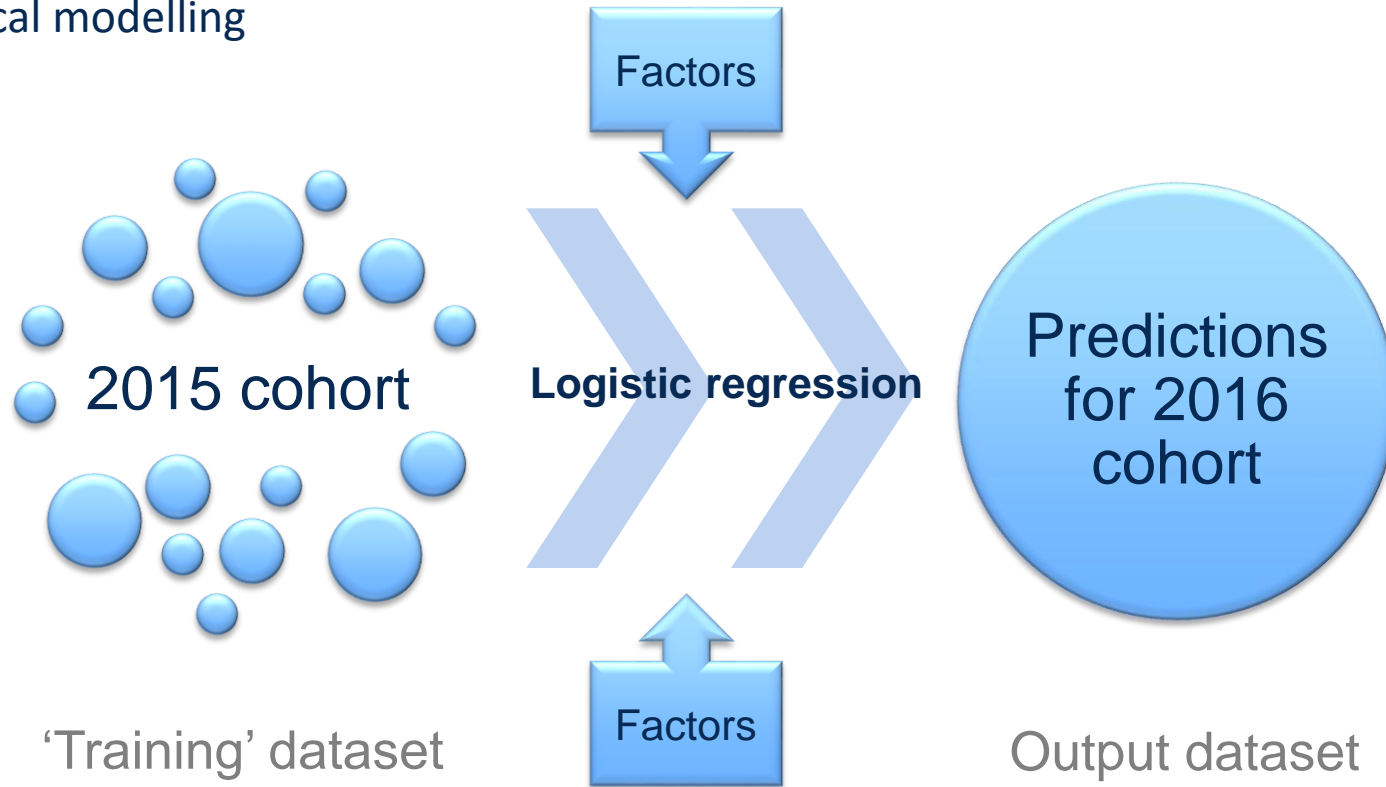
Development of early alert indicators

Application of a predictive analytics model to trigger interventions with vulnerable students



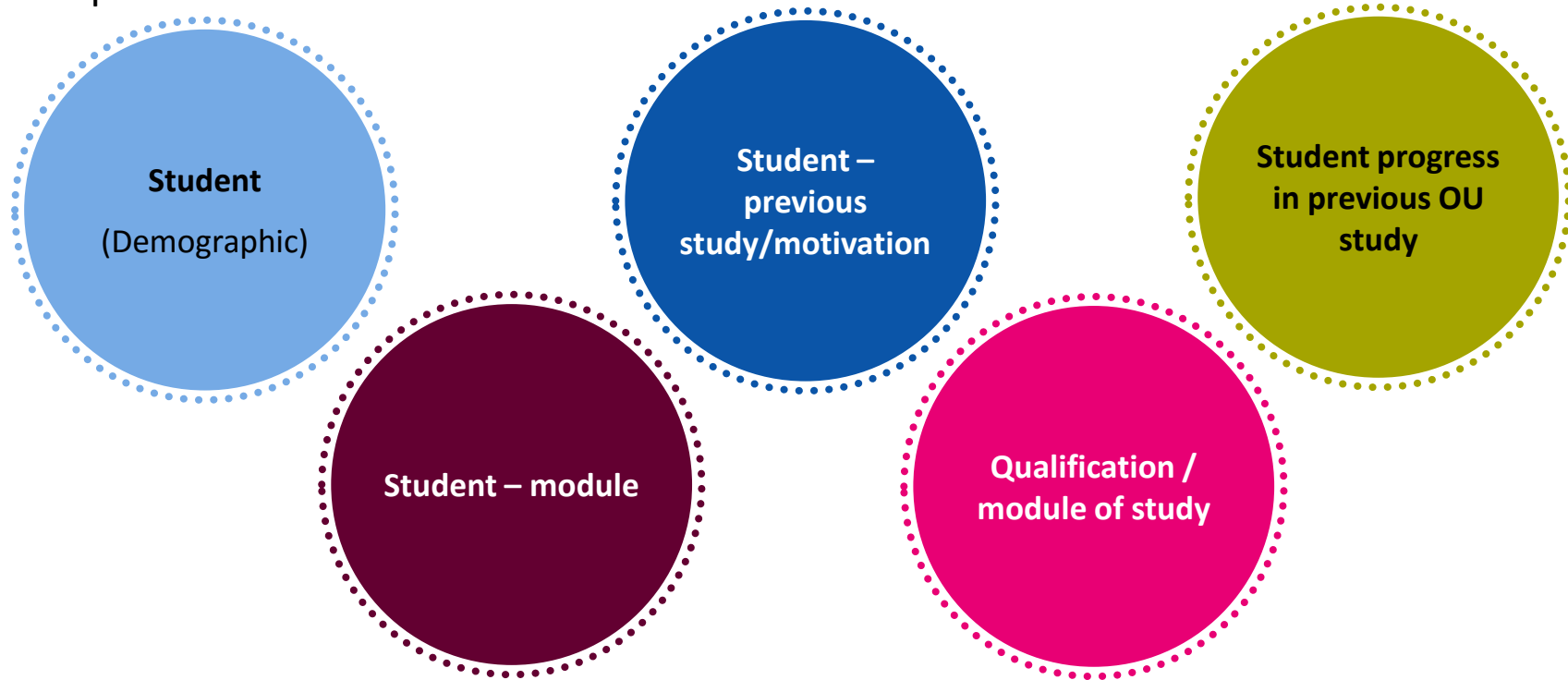
Development of early alert indicators

Statistical modelling



Development of early alert indicators

The 30 variables identified associated with success vary in their importance at each milestone



Current indicators

Module probabilities

Integrated into
the Student
Support
Intervention
Tool

Predicts the
probability of a
student
completing and
passing the
module

✓ SST Reporting

Application search...

Curriculum

▼ SST Reporting

SST Summary

Report Builder

Report Builder - Results

Showing 1 to 10 of 1,566 entries (filtered from 1,619 total entries) Show entries 10 ▼

Students Matching Criteria

Module Code ▲	Module Title ▼	Module Level ▼
A105-2015J	Voices, texts and material culture	Level 1
A105-2015J	Voices, texts and material culture	Level 1
A105-2015J	Voices, texts and material culture	Level 1
A105-2015J	Voices, texts and material culture	Level 1
A105-2015J	Voices, texts and material culture	Level 1
A105-2015J	Voices, texts and material culture	Level 1
A105-2015J	Voices, texts and material culture	Level 1
A105-2015J	Voices, texts and material culture	Level 1
A105-2015J	Voices, texts and material culture	Level 1
A105-2015J	Voices, texts and material culture	Level 1

Showing 1 to 10 of 1,566 entries (filtered from 1,619 total entries) Select All Select

Show Report Builder Export to Excel

0 Record(s) Selected

Show / hide columns ▼

Module probabilities

Of completing the module ▼

Logout

If you cannot view the images in this email, please click the 'enable content/download images' prompt in your email browser above



The Open University

Practising Science

Welcome PJ Student PI: PJ123456



I just wanted to drop you an email to introduce myself - I am Jean McCloughry, the Course Director during your residential school week starting on Saturday 19 July. I am looking forward to seeing you in Edinburgh in a few days time.

What to expect

At the start of the school you will be assigned to a small group of fellow students and led by a group tutor who will be with you for the week. I know many students can be a little nervous at the start of a residential school, but don't worry; everyone is in the same boat. By the end of the second day it is normally hard to get the group to stop talking!



When you arrive

When you arrive, please go first to the visitors reception in the James Watt Centre where we will register you. Registration starts at 13:00, with my Welcome session at 16:00. Please arrive in plenty of time to find your room and settle in before the session starts.

Course Website

Residential School Info

Additional Support

Students Experiences

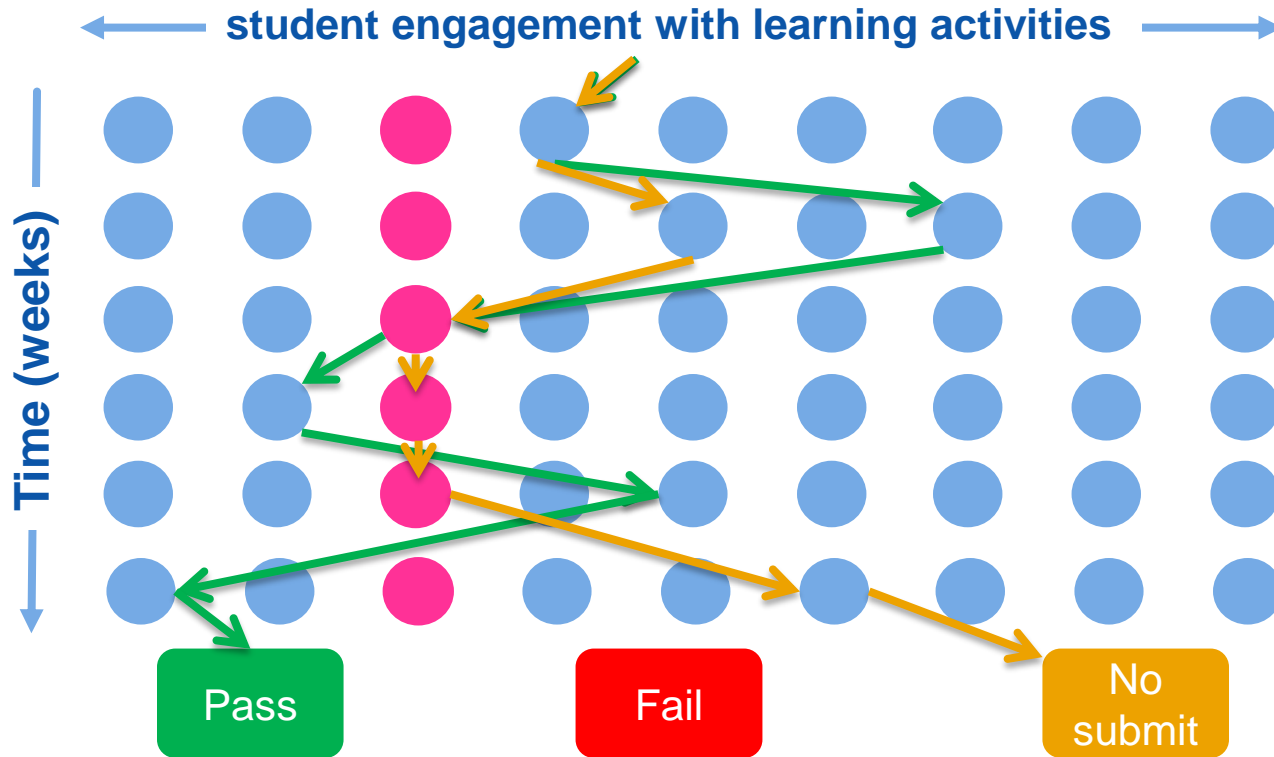
What is covered in the residential school?

We are sure you'll have great fun at the residential school. But don't take my word for it. Click on the Students Experiences button on the left to see what other students thought about your residential school.

What to bring with you

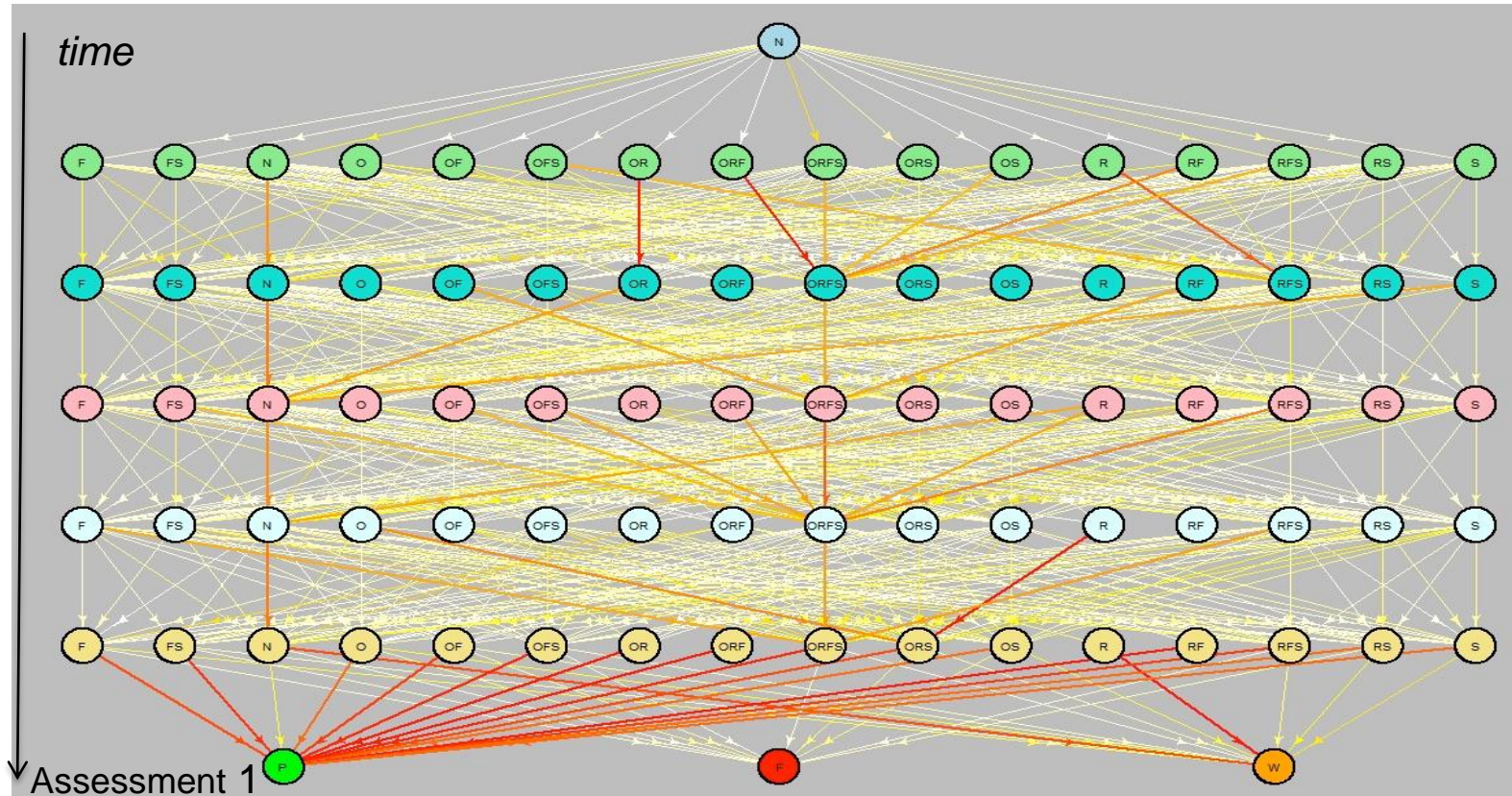
Don't forget to check the list of items you need to bring with you in Appendix 2 of your Course Guide. Remember to pack some sun protection, waterproofs and good footwear for the day field trip. We will provide the hard hats!

OU Analyse



OU Analyse

Module fingerprint

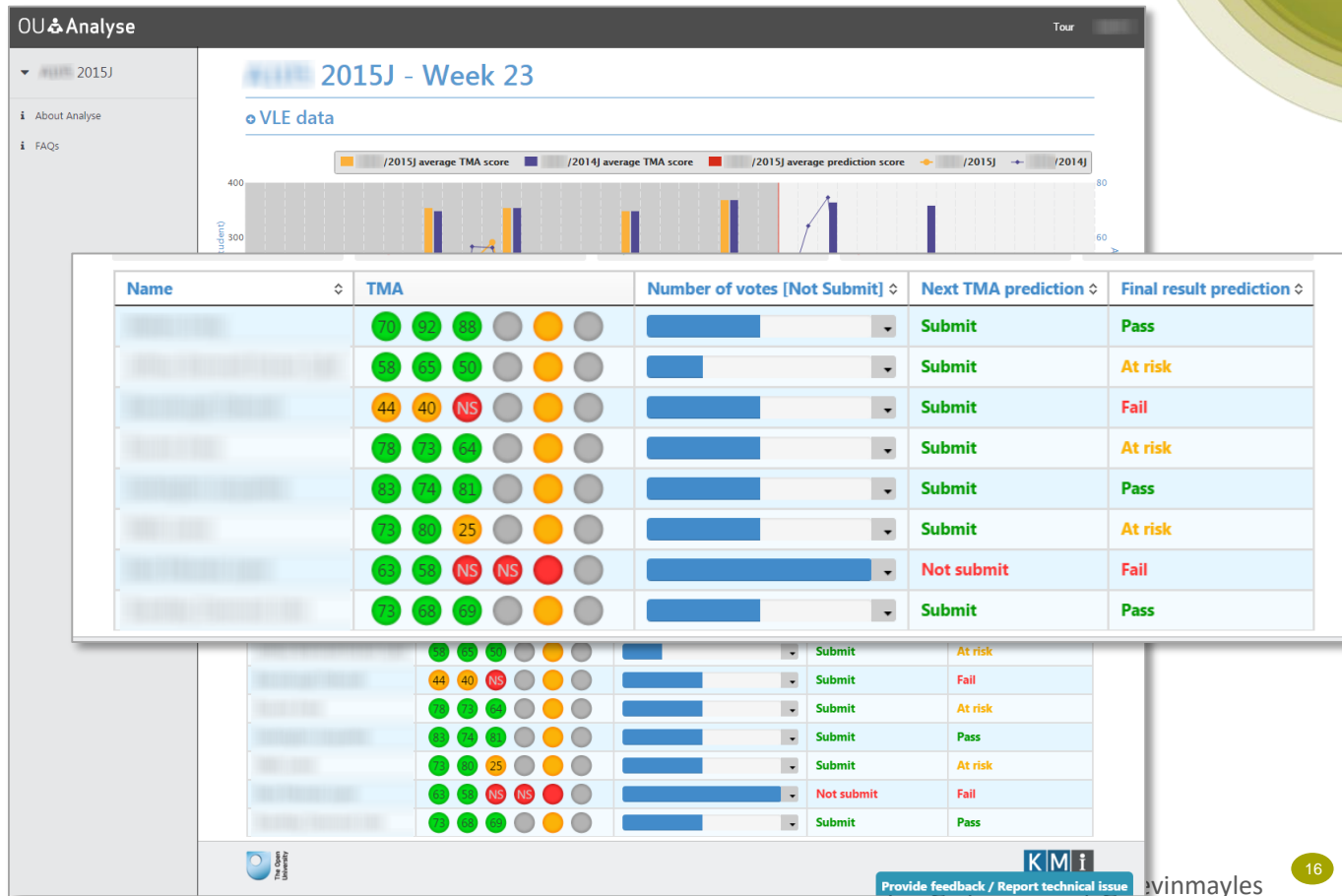


Current indicators

OU Analyse

Predicts the submission of next assignment weekly

Deployed through OU Analyse Dashboard



Outcomes of current pilots

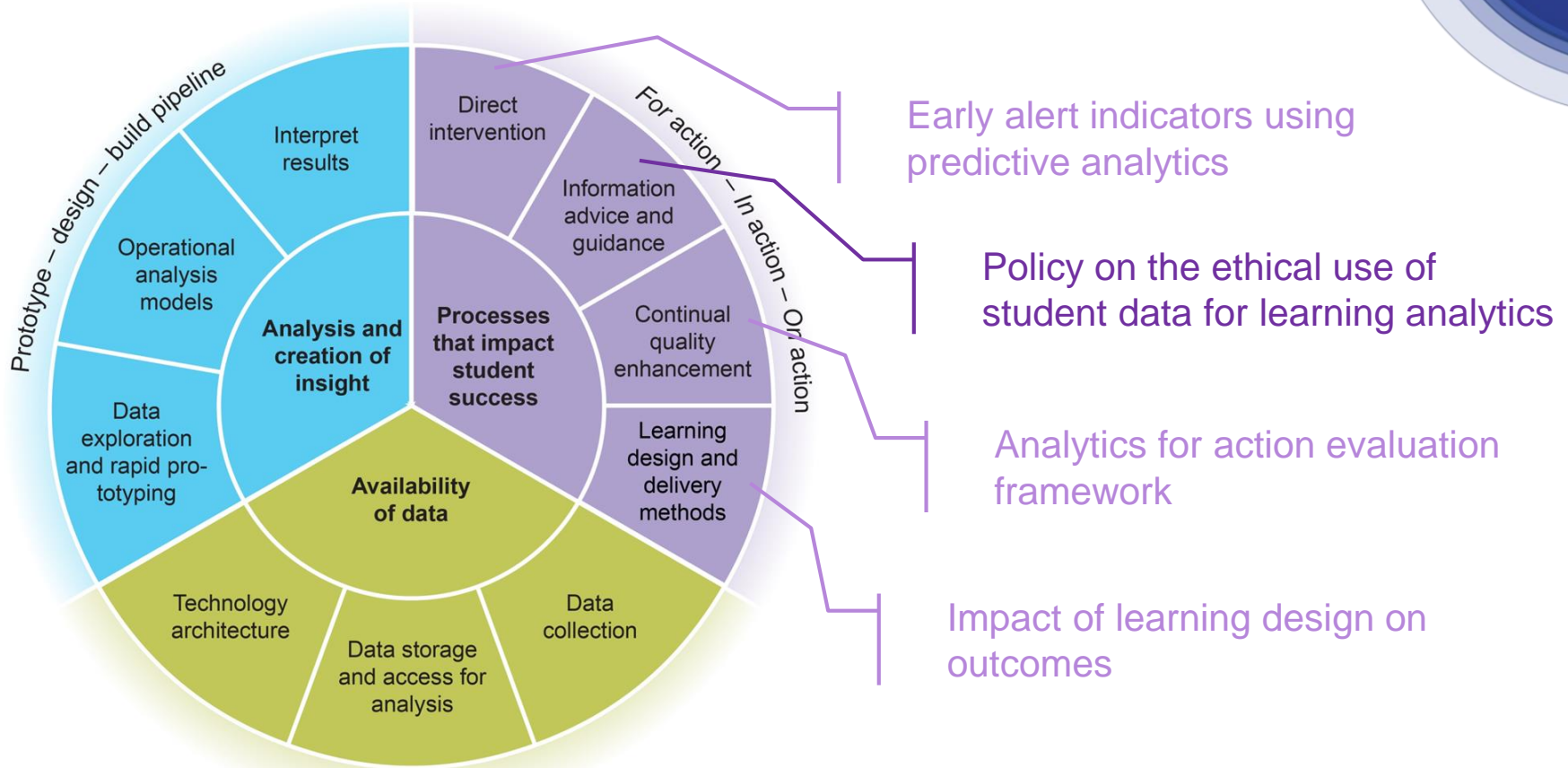
Summary of the interim evaluation of piloting as at March 2016

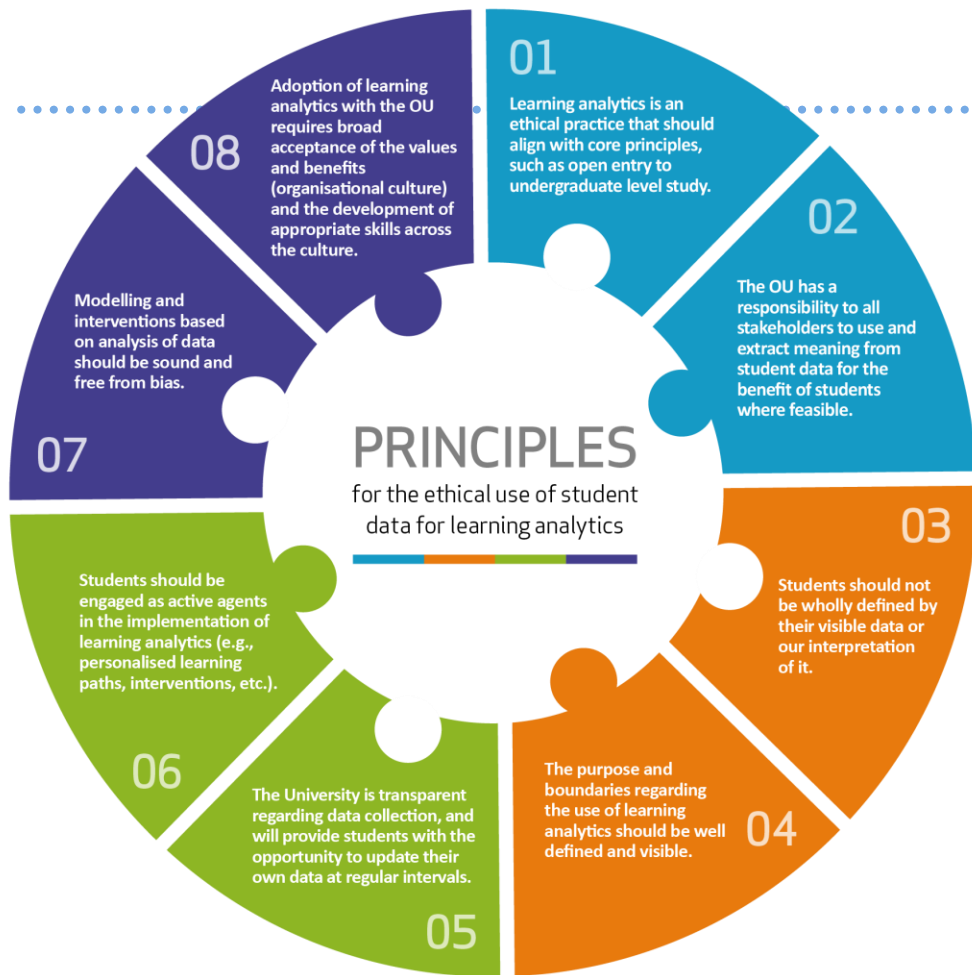
- There is a mixed picture in the quantitative analysis on the impact in the pilot tutor groups on withdrawal rates and assignment submissions (note that tutors are self selected and the expectations to intervene are not consistent across the module piloting)
- It is a useful tool for understanding students and their participation
- Predictions generally agree with tutors' experience and intuitions of which students might potentially be at risk
- A (potential) USP of OU Analyse was the **information provided between the assignment** submission in relation to students' engagement with learning materials
- Overall, all tutors interviewed were positive about the affordances of OUA, and are keen to use it again (for a range of reasons) in their next module

Case studies and vignettes

“I love it it’s brilliant. It brings together things I already do [...] it’s an easy way to find information without researching around such as in the forums and look for students to see what they do when I have no contact with them [...] if they do not answer emails or phones there is not much I can do. OUA tells me whether they are engaged and gives me an early indicator rather than waiting for the day they submit”


Analytics enhancement strategy





Information for students





The Open University

Accessibility | Mobile view | Kevin Mayles / Sign out | StudentHome | TutorHome | IntranetHome | Contact | Search the OU

Essential documents

Ethical use of Student Analytics Policy


Also listed as:
Ethical use of Student Data for Learning

This policy aims to set out how the University's student support provided. The policy is particular aspects of learning analytics.

- Policy on Ethical use of Student Data
- Ethical use of Student Data for Learning
- Using information to support student learning

For more information, see [How the OU uses student data](#)

Charter Principle:
We treat each other with dignity and respect



The Open University

Help Centre > Complaints, appeals and policies > Student policies > How the OU uses student data

How the OU uses student data

Note for staff. This page is targeted at the following audiences: [student](#), [public](#), [Find out more](#)

Page 1 of 5

This article explains how we collect and use your data and describes the policies that govern this. The Open University collects and uses personal student data to fulfil its legal obligations. You may have heard news reports of security breaches involving internet service providers. When something like this happens we usually assess the risk and if necessary take action.

Policy

You can see the University's [Data Protection Policy](#) on Essential documents site.

We are committed to the data-protection principles of good practice. The University on a 'need-to-know' basis so that we can support you.

In addition, you may want to read about how we use [learning analytics](#).

We have other information and security policies that staff must observe to keep your data safe. See the [Data Protection Act](#).


Ensuring University policies are followed

Only staff who need to see students' records have access to them. The computer systems of staff with particular roles can view information.

All University staff must follow the University's Data Protection Code of Practice. Staff and the procedures they should follow to ensure they are working within the law. Personal data on students must not be divulged outside the University and must be deleted when it is no longer needed. Staff would only look at your student record if, for example they were dealing with a complaint. Even then it's unlikely that they'd be able to see all the information held in your record.

Page 1 of 5

Found what you're looking for? ☒ Yes ☐ No



The Open University

Sign in | Contact the OU | Accessibility | Search the OU

Kevin Mayles | Sign out | TutorHome | IntranetHome | Contact the OU | Accessibility | Search the OU

StudentHome | Profile | Dashboard | Study | Library | Community | Help Centre

Help Centre > Complaints, appeals and policies > Student policies > Learning analytics and you

Search within help...

Learning analytics and you

Note for staff. This page is targeted at the following audiences: [student](#), [public](#), [Find out more](#)

University staff look for the best ways to support you in getting good results. But it's not always easy to know when we should offer extra help.

- Our excellent tutors are there for you when you need support in your module.
- Our student support teams (SST) are highly trained in providing study advice to fit your circumstances.
- Our IT staff have developed sophisticated systems and statistical methods to help us to be proactive in offering individual support when we think it might be needed.

The techniques of learning analytics help us to select specific types of information from the data we have and use it to personalise what we send out to students. That way you don't get messages that aren't relevant to you, and we try to send helpful ones at the right time.

To do this we use the data you gave us when you registered - such as your previous educational experience - along with the information we record during your studies, such as when you submitted an assignment.

Our analysis of past students also helps us to decide what might be helpful. If, for example, you're studying several modules at once we know it's worth getting in touch to check that you're ok and let you know about support you might find you need.

Because we're using your data in this new way we've produced a separate policy document: [Ethical use of student data for learning analytics](#). We developed it by reviewing research on learning analytics and consulting with students through a student forum. The policy itself is primarily aimed at staff, but there's also an associated set of FAQs written from a student perspective.

How we use learning analytics

Student data is used in three main ways.

- Monitoring:** We try to identify students who meet certain criteria, such as submission of assignments or active engagement with their studies.
- Early warning indicators:** This approach is based on statistical analysis of past students and is an indication of the *likelihood* of something happening: it is not an absolute prediction but an indicator of how likely we think it is (based on the information we know) that a student will be successful at a particular point. No model can predict outcomes with absolute certainty, and there will always be things that affect students' progress that are beyond the University's control or knowledge.

However, the predictive models used combine the effects of multiple factors to create the probabilities and have been shown to provide an acceptable level of accuracy at the individual student level. We contact students who are new to study to welcome them, explain about expectations of workload, and encourage them to plan ahead. We analyse information that we hold about all of our students to help us to identify and prioritise students who may benefit from a call that can offer additional support or encouragement. It should be noted that the ethical use of the predictive data is being considered and our use of this data will meet with the university's ethical and data protection policies.

- Evaluating our teaching:** We evaluate our teaching and learning design and technology by aggregating your data to help us make improvements in, for example, the assessment strategy for a module.

Found what you're looking for? ☒ Yes ☐ No [Save this page](#)

This article is part of:

- Complaints, appeals and policies

Related help

- Changes to policy, terms and conditions
- How the OU uses student data
- Policy documents for students
- Social networking guidance
- Student charter
- Student consultation

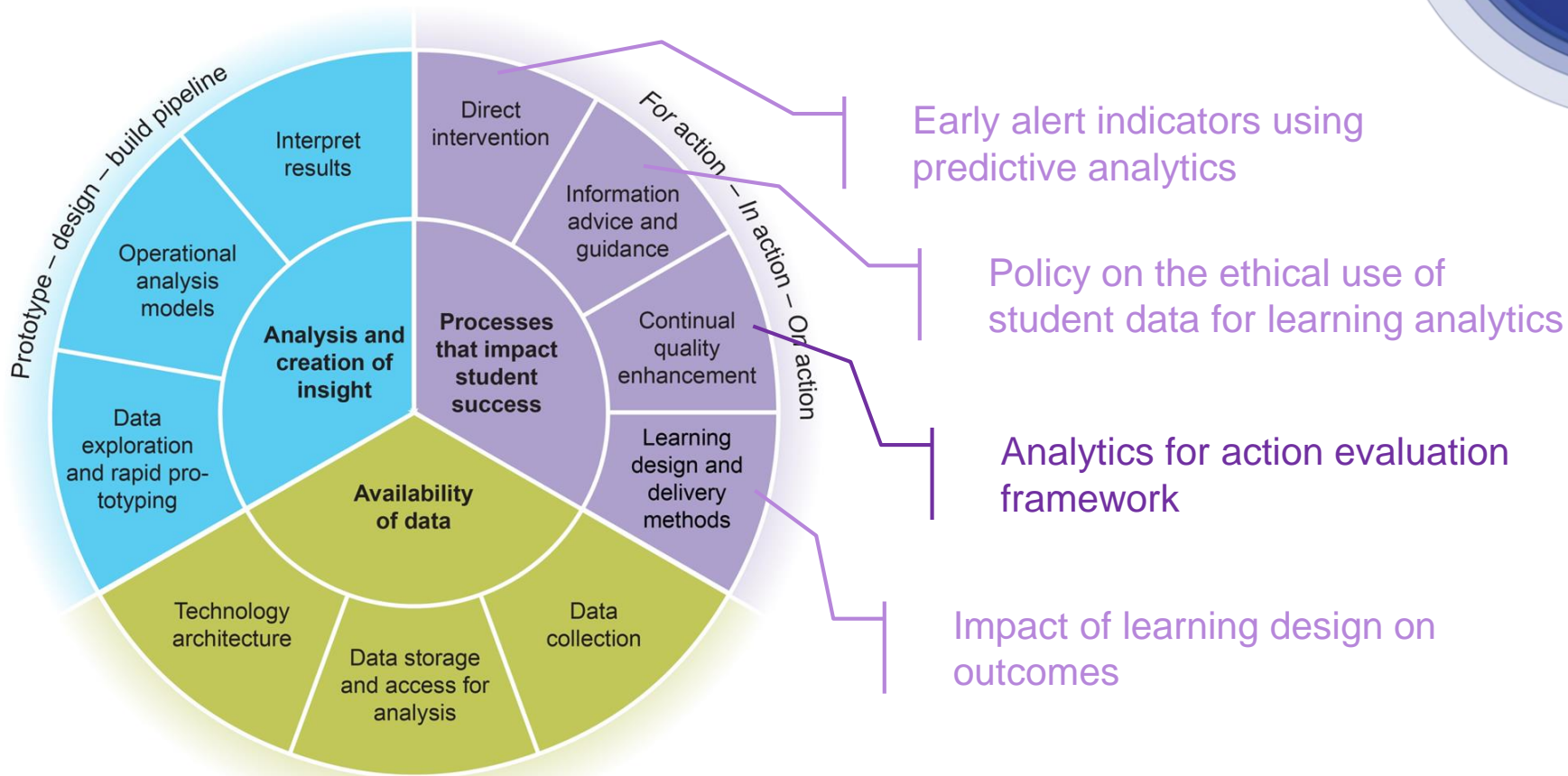
Your Help Centre

- Recommended
- Popular
- Saved
- Contact us

kevinmayles

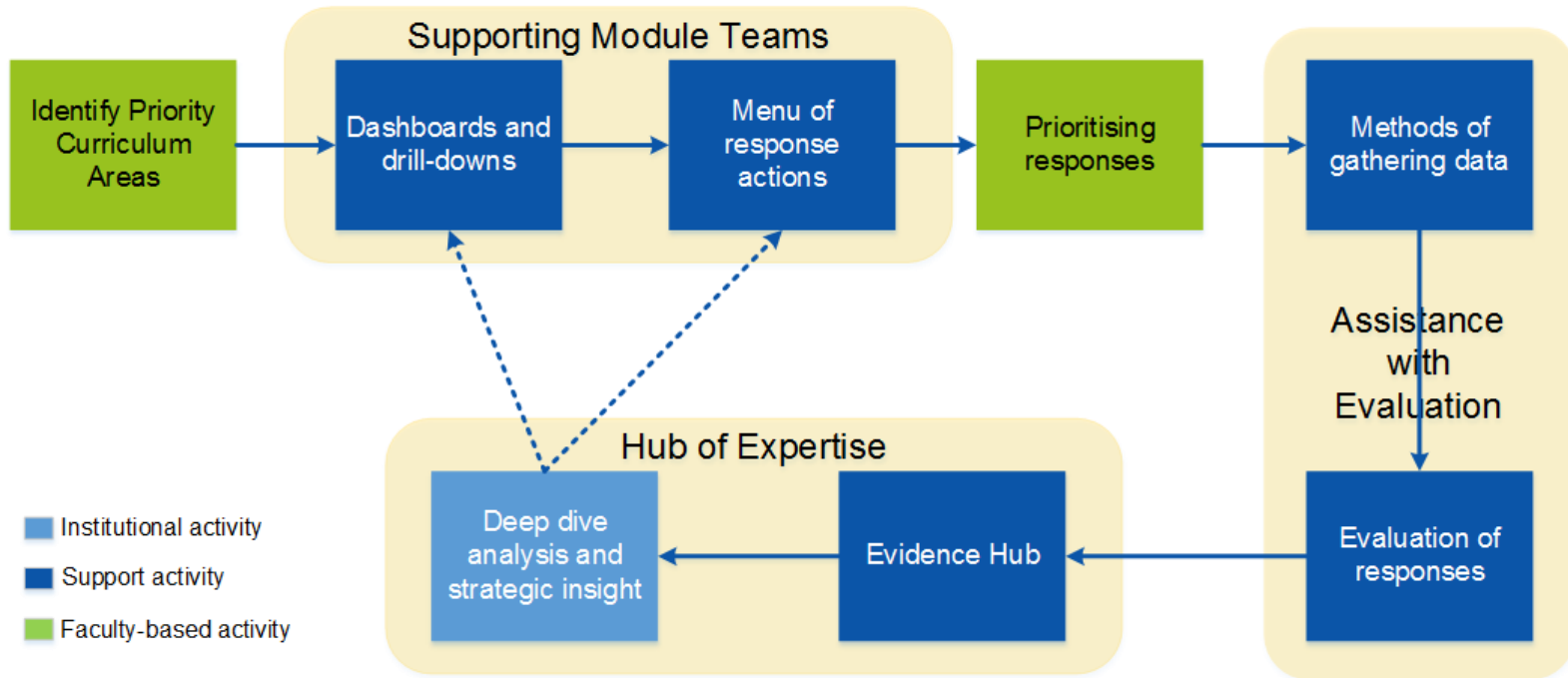
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Analytics enhancement strategy

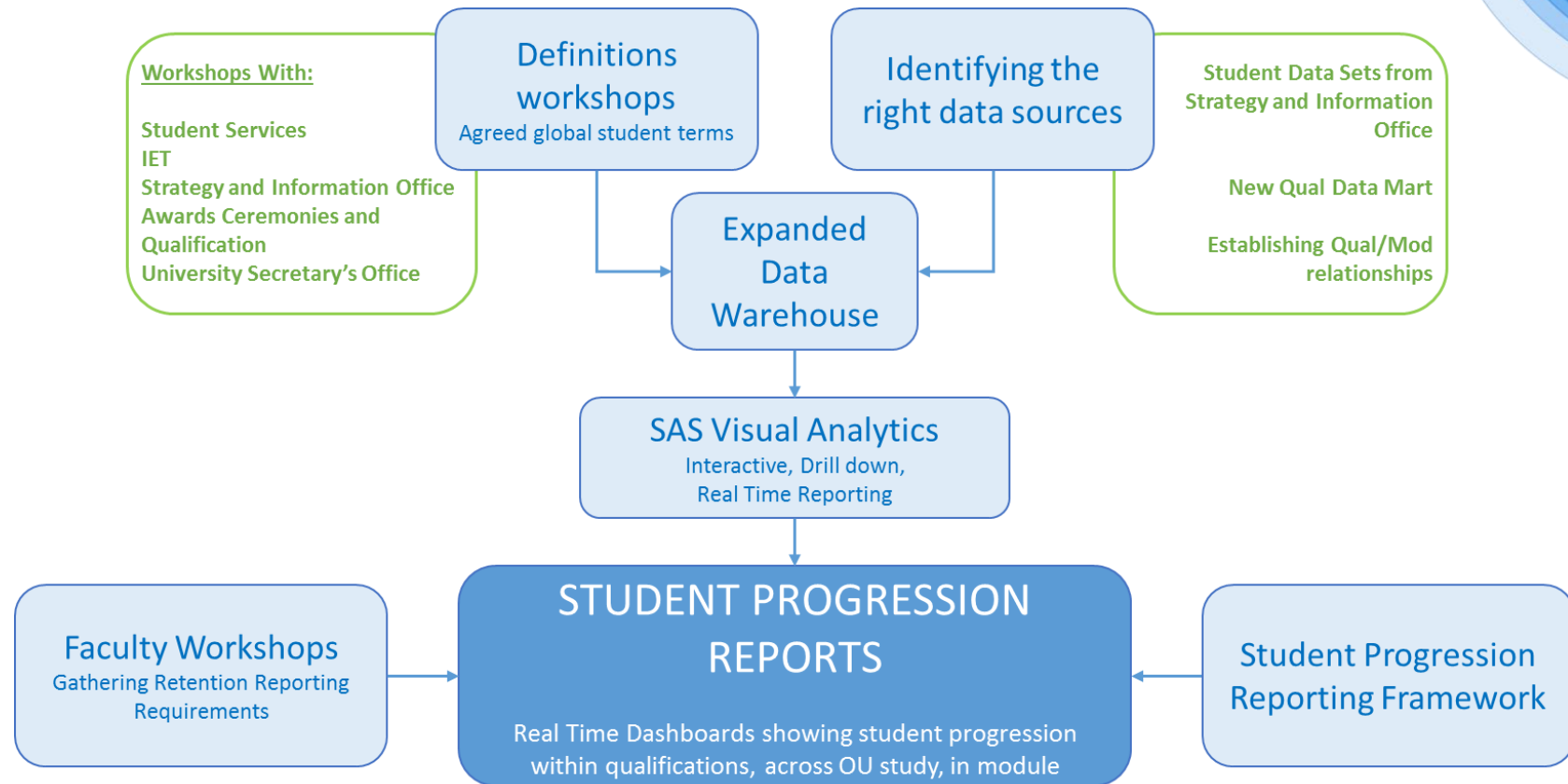


Scaffolding action

Analytics for Action Evaluation Framework and Toolkit



Real-time progression reports



Real-time progression reports

Student Focussed Views

Institutional View

User: VCE

Progression
Against Targets

Qual Retention
Top/Bottom

Module Retention
Top/Bottom

Current Student
Body Profile

Real Time Data Views

Faculty Dashboard

User: Deans

Which quals have retention issues?
RAG status of retention measures

Which modules have retention issues?
RAG status of retention measures

Global Data Definitions

Qualification Dashboard

User: PDs & QMs

Retention Rates by
Qual

Which modules
are my students
studying?

How are my qual
students performing
in module?

Are students
progressing
through my qual?

Drill down output

Module Dashboard

User: Mod Teams

Real Time Module
Retention

Are my students in
qual, standalone,
concurrent study?

How are students
performing on my
mod (by qual)

Are my students
still engaged?

Key indicators

Reports to Understand Progression
and Performance Relationship
between Qual and Module

Who is on A105 - Voices, texts and material culture and what are they studying?

Students at mod start



Students 25% at FLP

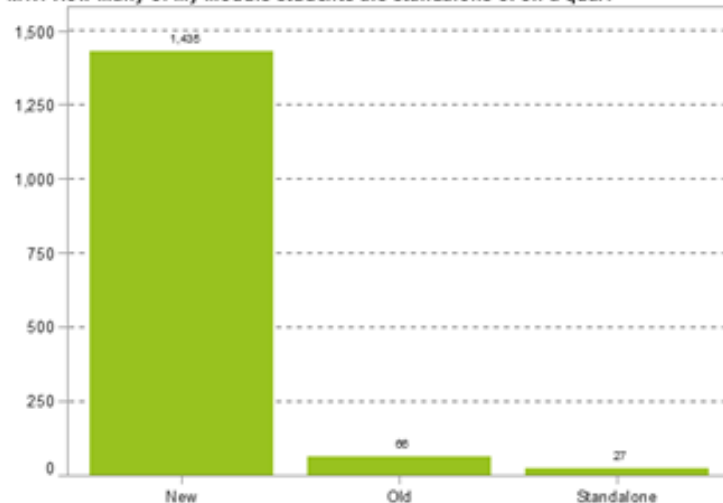


Current students



See [Withdrawers section](#) for further information on those students that have withdrawn from this module

M1.1 How many of my module students are standalone or on a qual?



M1.2 Which new framework qualifications are my students studying?



M1.3 Which old framework qualifications are my students studying?



Arts

OU Level 1

New Framework Qualifications

These are the new framework qualifications that your module students have linked this module to.

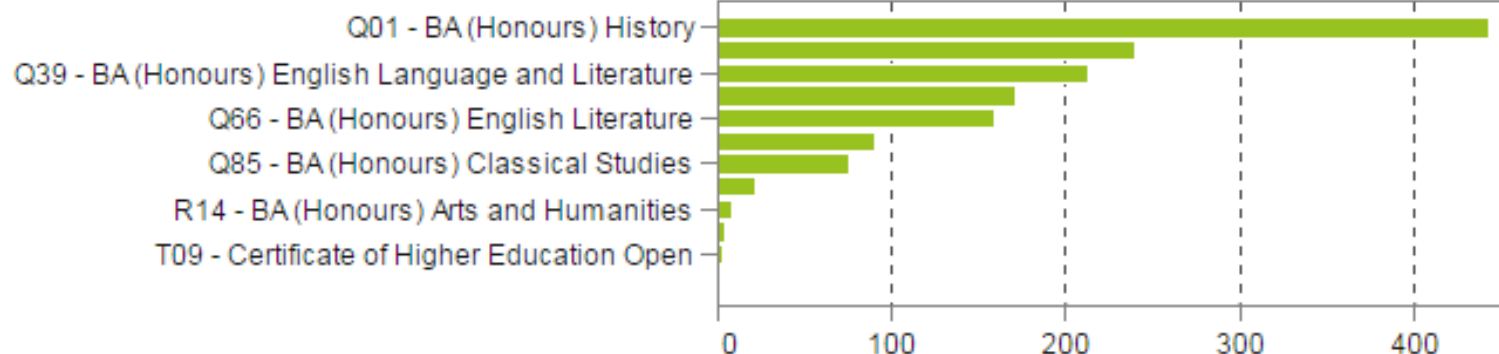
5. Assessment Scores/Submissions

6. Assessment

erial culture and what are they studying?



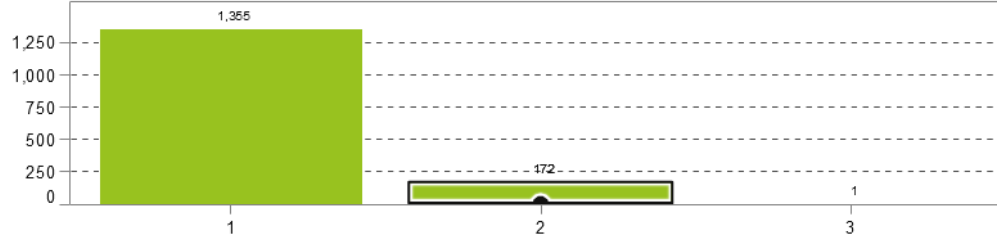
M1.2 Which new framework qualifications are my students studying?



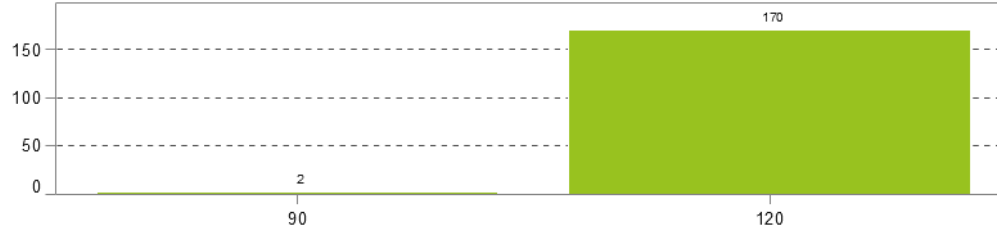
Are A105 - Voice texts and material culture students studying multiple modules?



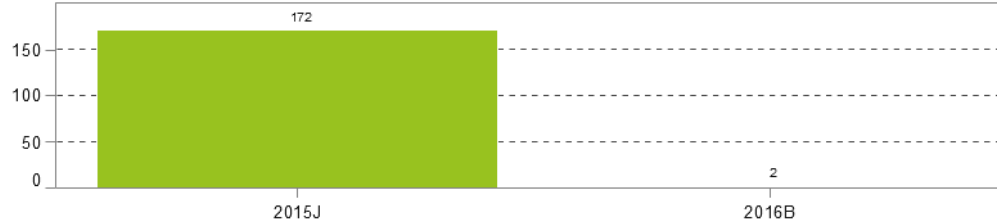
M2.1a How many modules are my students studying? (Click bar to filter visuals M2.1b and c)



M2.1b How many credits are my students studying?



M2.1c Which presentations are students in multiple modules studying?



M2.2 How many students are studying concurrently?

Concurrency	N students	
Concurrent	171	
Overlapping	2	
Total:	173	

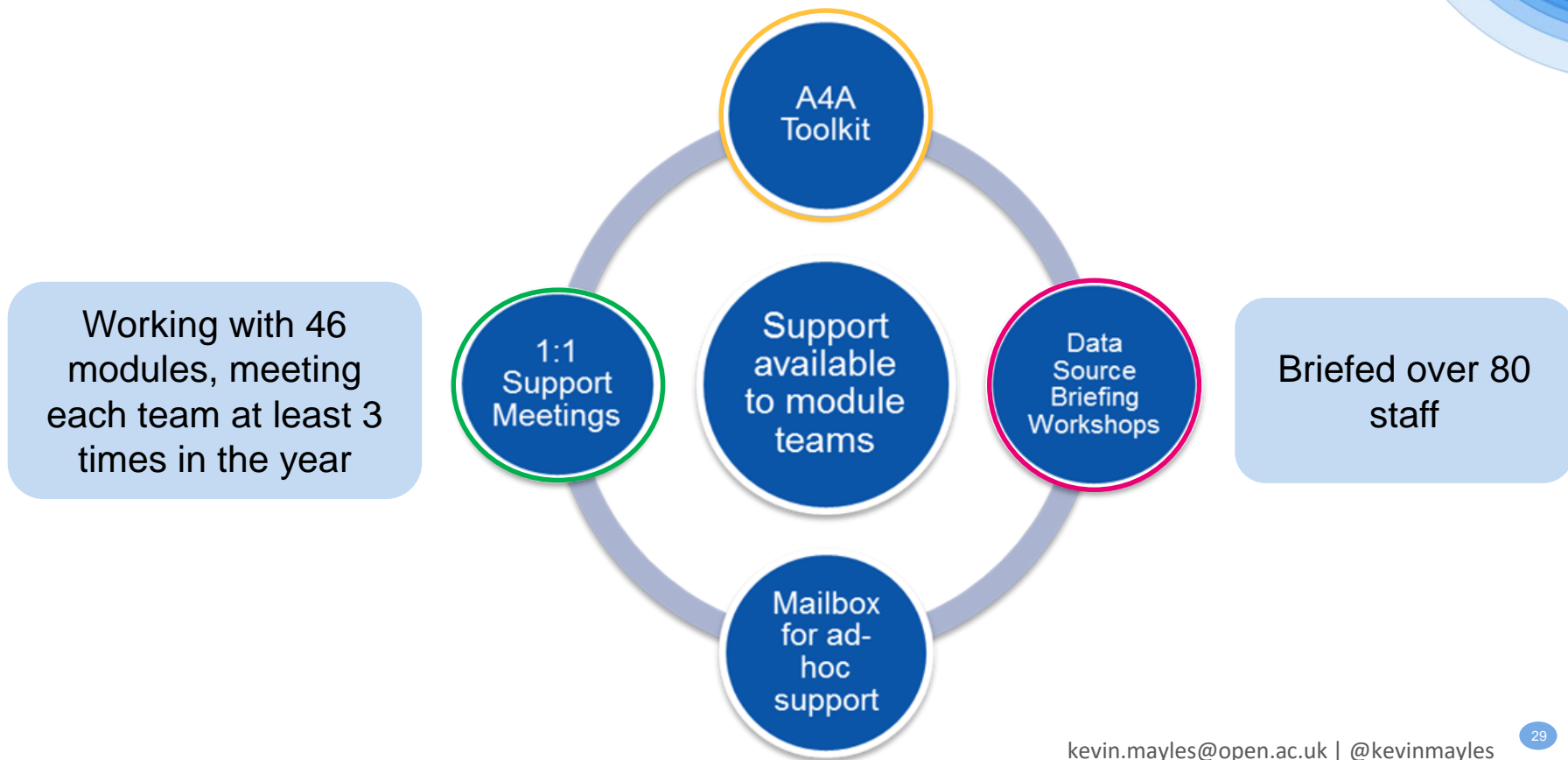
M2.3 Modules currently being studied with A105 - 20...

Choose concurrent/overlapping:

Concurrency

Module	N students	Concurrency	
AA100 - 2015J	112	Concurrent	
A215 - 2015J	13	Concurrent	
A200 - 2015J	12	Concurrent	
A230 - 2015J	12	Concurrent	
U214 - 2015J	5	Concurrent	
A217 - 2015J	3	Concurrent	
A224 - 2015J	3	Concurrent	
AD281 - 2015J	2	Concurrent	
A105 - 2016B	1	Overlapping	
A219 - 2015J	1	Concurrent	
A326 - 2015J	1	Concurrent	
A327 - 2015J	1	Concurrent	
A330 - 2015J	1	Concurrent	
A340 - 2015J	1	Concurrent	

Supporting Module Teams



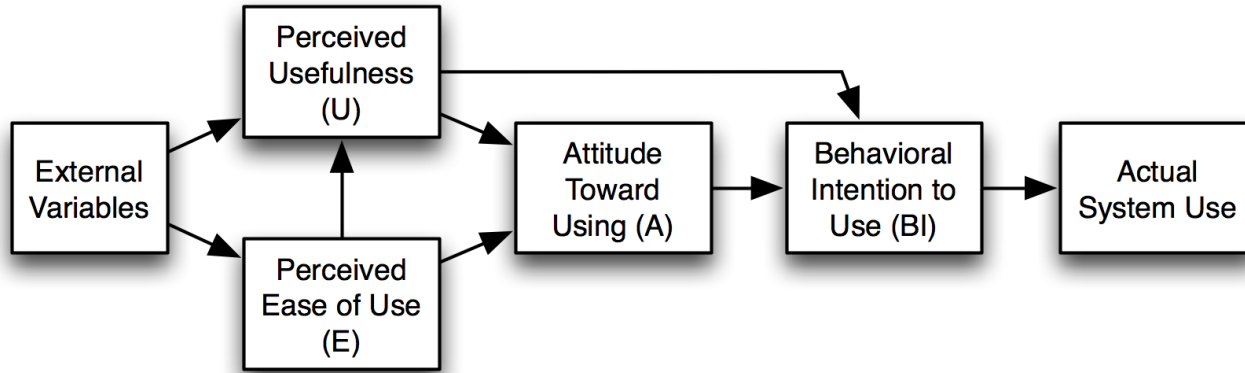
Supporting module teams



- Technology Enhanced Learning Team enabled actions
- Module Team enabled actions
- Student Support Team enabled actions
- Associate Lecturer enabled actions
- Library Services enabled actions

Evaluating the use of the A4A Framework

Technology Acceptance Model (TAM1)



The Technology Acceptance Model, version 1.
(Davis, Bagozzi & Warshaw 1989)

- Explains why a user accepts or rejects a technology.
- **Perceived usefulness** and **perceived ease of use** influence **intentions to use** and **actual behaviour**.
- Identify what factors explain future intentions to use the innovation and actual usage behaviour

Feedback from Data Source Briefing Workshops



Based on Technology Acceptance Model (TAM1)

Perceived usefulness (PU)

- Using the data tools will improve the delivery of the module.
- Using the data tools will increase my productivity.
- Using the data tools will enhance the effectiveness of the teaching on the module.

Perceived ease-of-use (PEOU)

- Learning to operate data tools is easy for me.
- I find it easy to get the data tools to do what I want them to do.
- I find the data tools easy to use.

Perceived training requirement

- I expect most staff will need formal training on the data tools

Satisfaction with Workshop

- The instructors were enthusiastic in the data briefing.
- The instructors provided clear instructions on what to do.
- Overall, I am satisfied with the workshop.

Feedback from Data Support Meetings



Based on Technology Acceptance Model (TAM1)

Perceived usefulness (PU)

- Using the data tools from the support meeting will enhance the effectiveness of the teaching on the module.
- Using the data tools from the support meeting will improve the delivery of my module.
- Using the data tools from the support meeting will increase my productivity.

Perceived ease-of-use (PEOU)

- I find it easy to get the data tools used in the support meetings to do what I want them to do.
- I find the tools used in the support meeting easy to use.
- Learning to operate the data tools used in the support meeting is easy for me.

Perceived training requirement

- Based upon my experience with the data tools used in the support meeting, I expect that most staff will need formal training to use these tools.

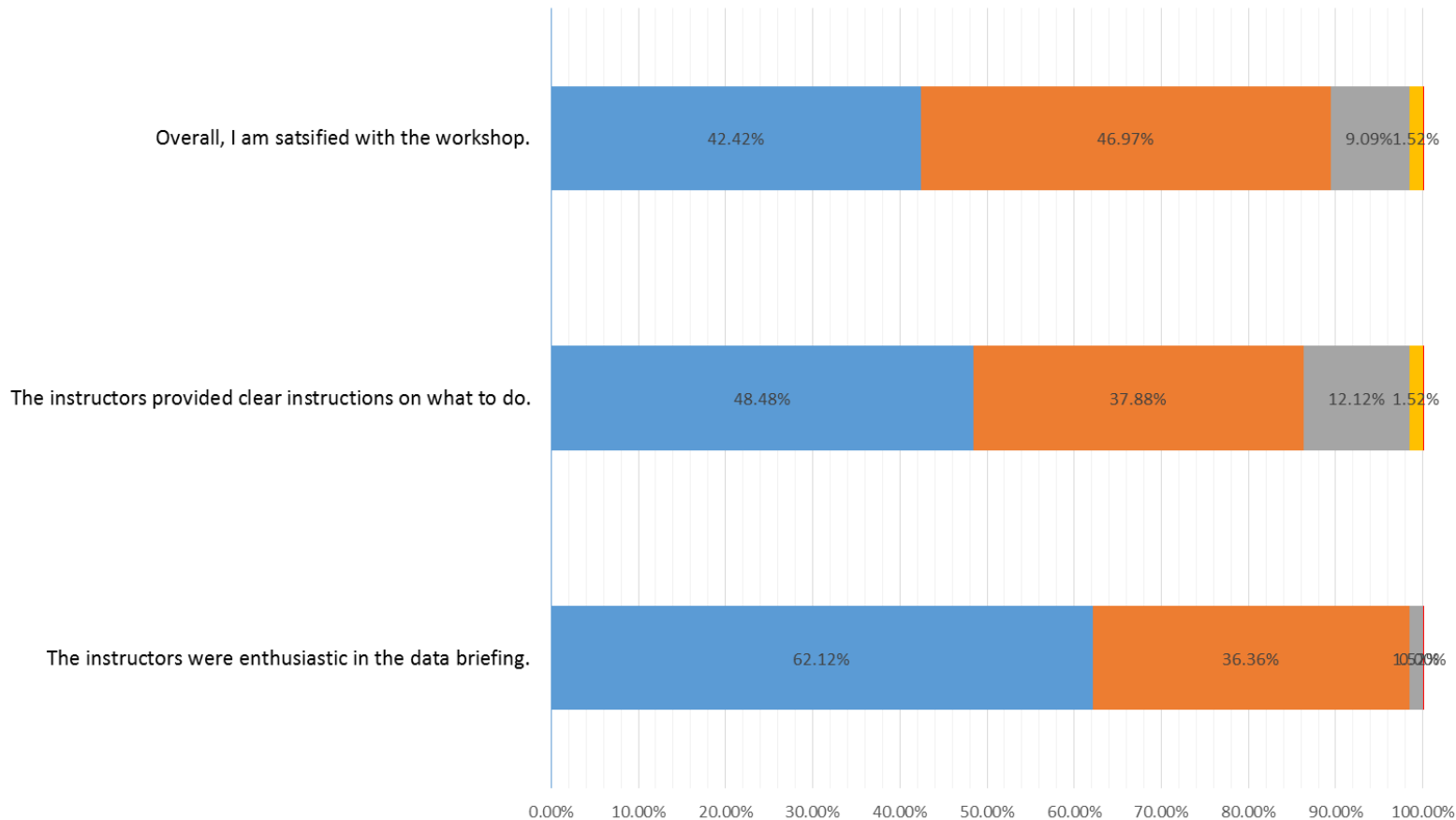
Satisfaction with Workshop

- The facilitators helped me identify an issue, or an action, that could be taken on my module.
- The facilitators provided a clear interpretation of my module's data.
- The facilitators were enthusiastic in the support meeting.
- Overall, I am satisfied with the support meeting.

Satisfaction with Workshop

Workshop

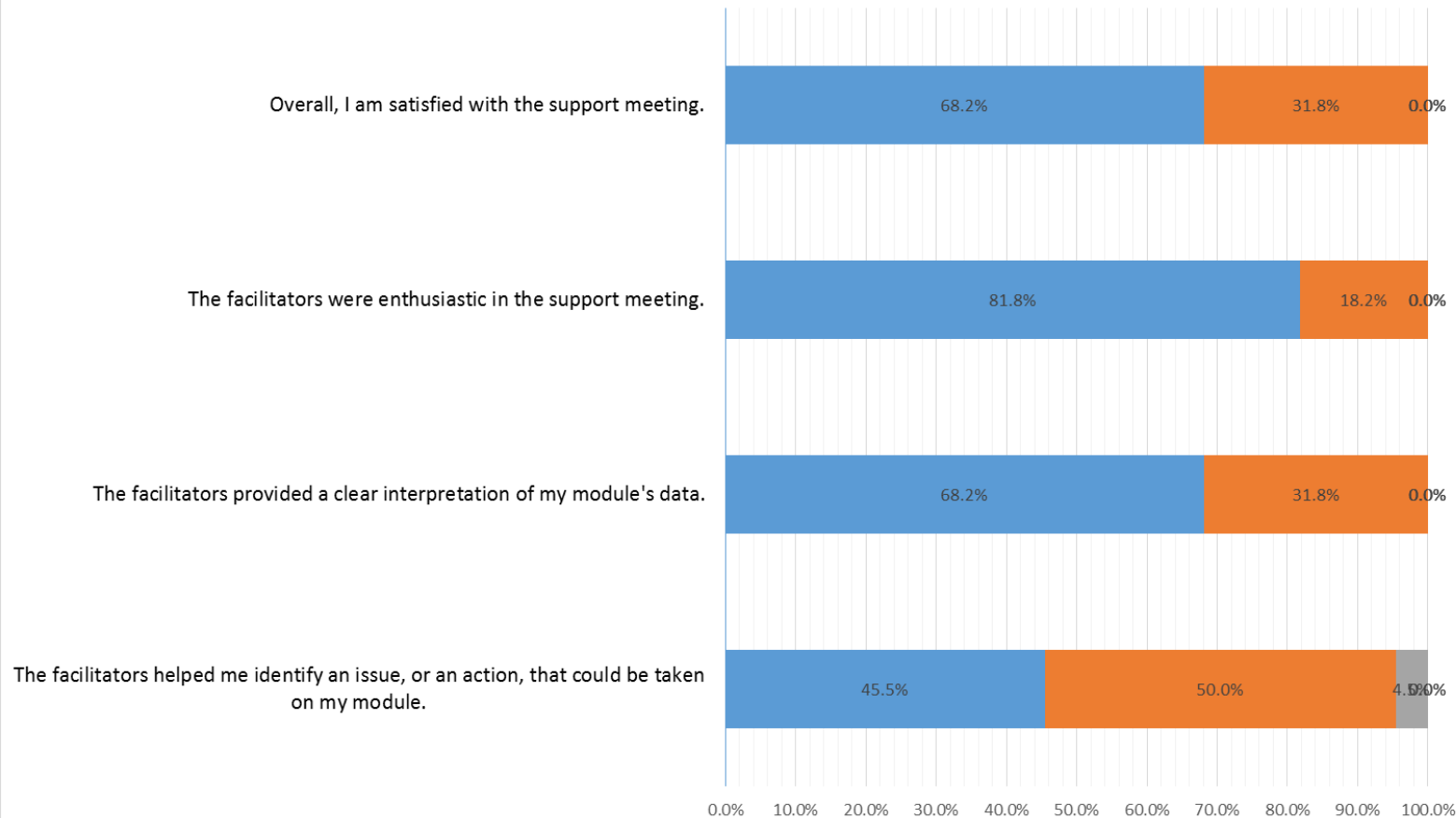
Totally Agree Agree Neutral Disagree Totally Disagree



Support meetings

Satisfaction with Support Meetings

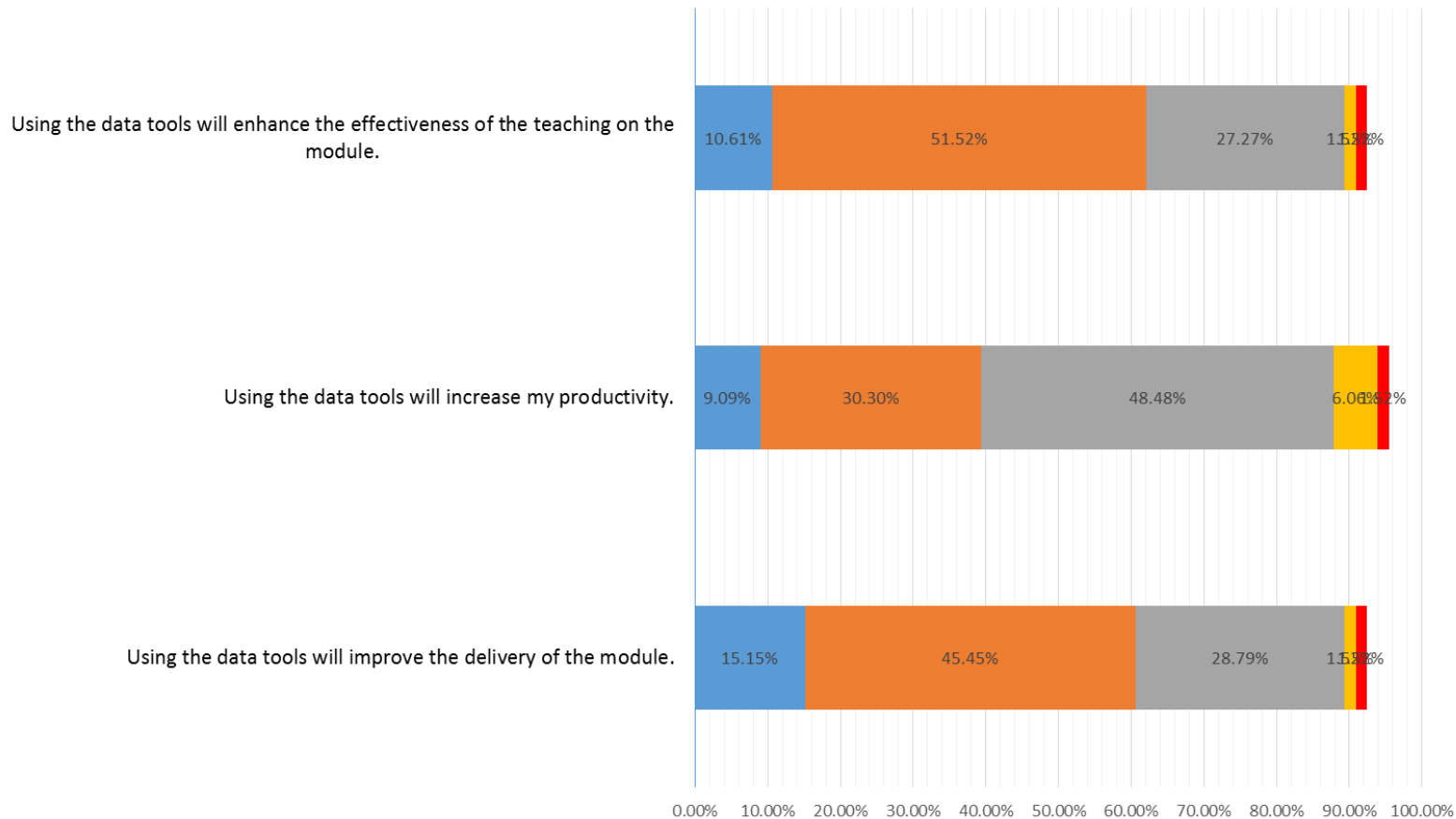
■ Strongly Agree ■ Agree ■ Neutral ■ Disagree ■ Strongly Disagree



Workshop

Perceived Usefulness

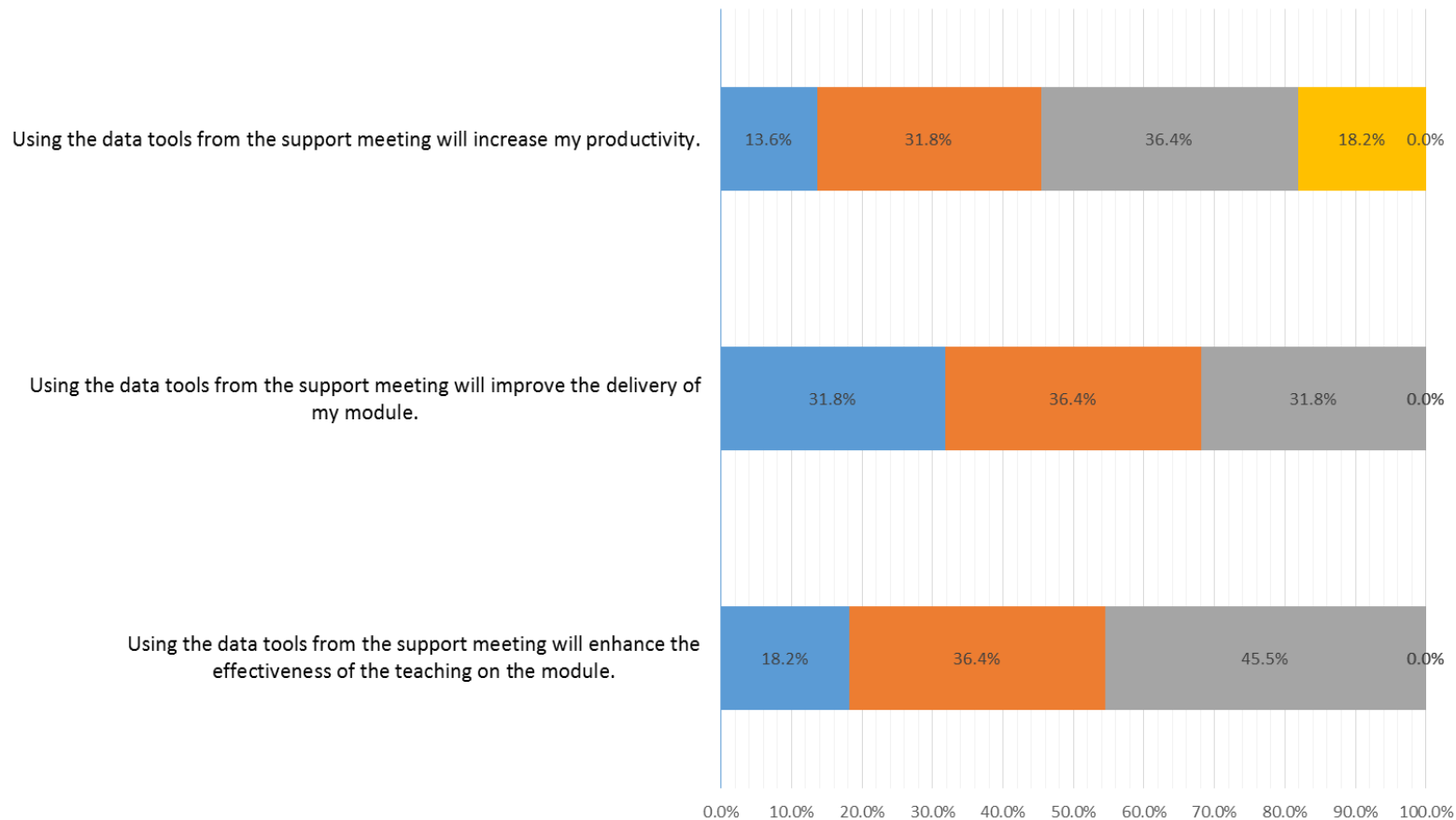
■ Totally Agree ■ Agree ■ Neutral ■ Disagree ■ Totally Disagree



Support meetings

Percieved Usefulness

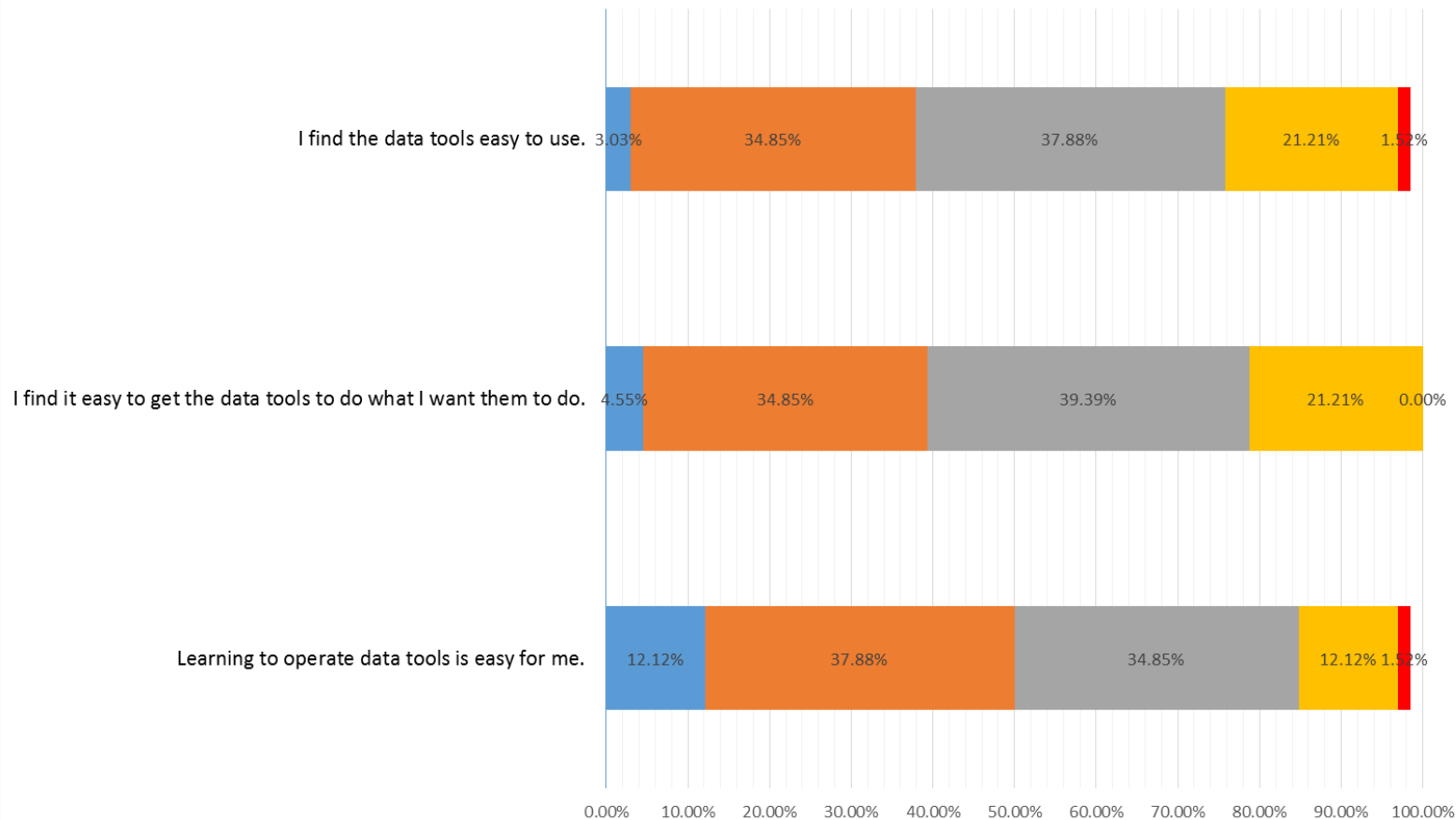
Strongly Agree Agree Neutral Disagree Strongly Disagree



Workshop

Percieved Ease of use

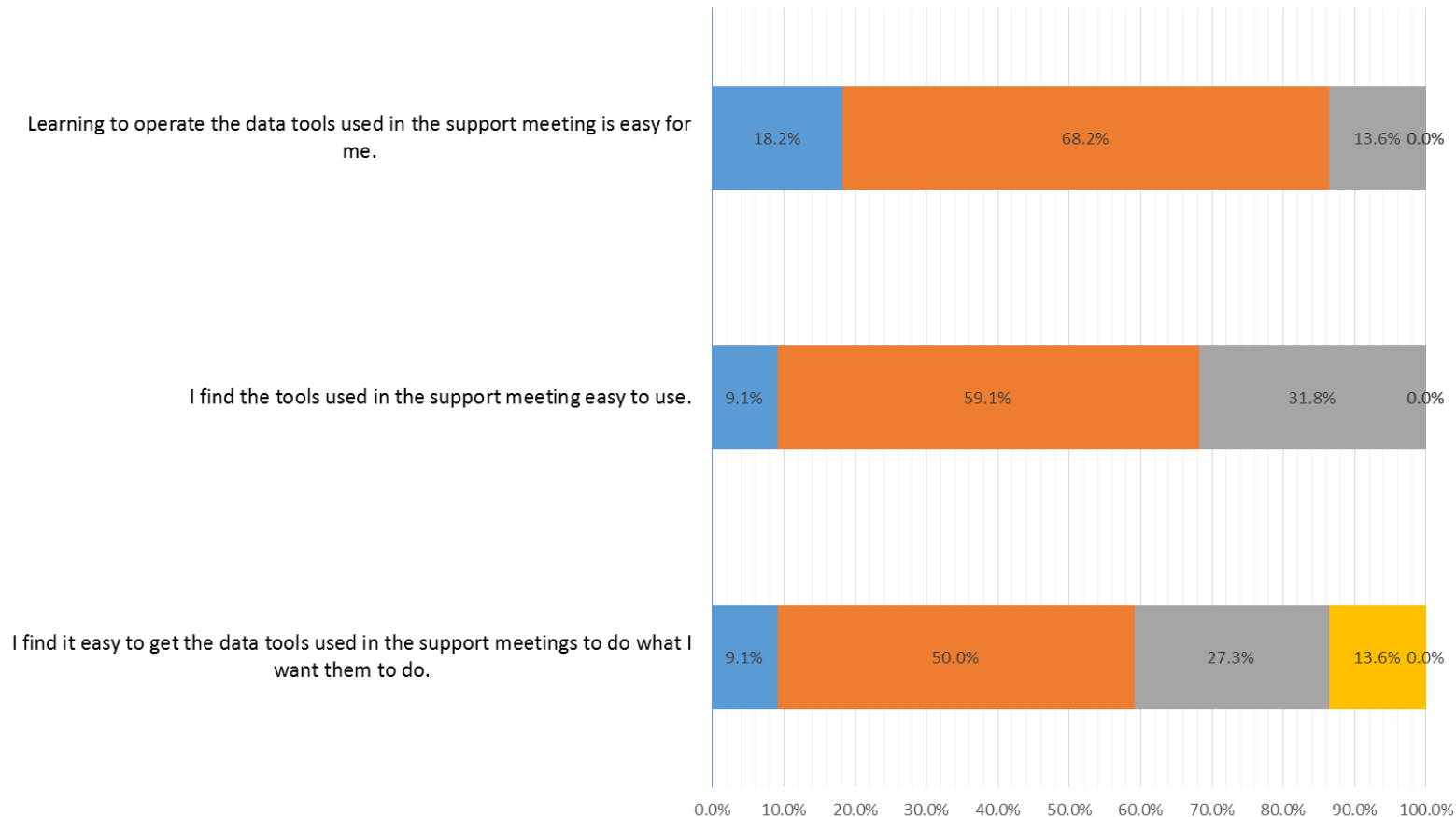
■ Totally Agree ■ Agree ■ Neutral ■ Disagree ■ Totally Disagree



Support meetings

Perceived Ease of Use

Strongly Agree Agree Neutral Disagree Strongly Disagree

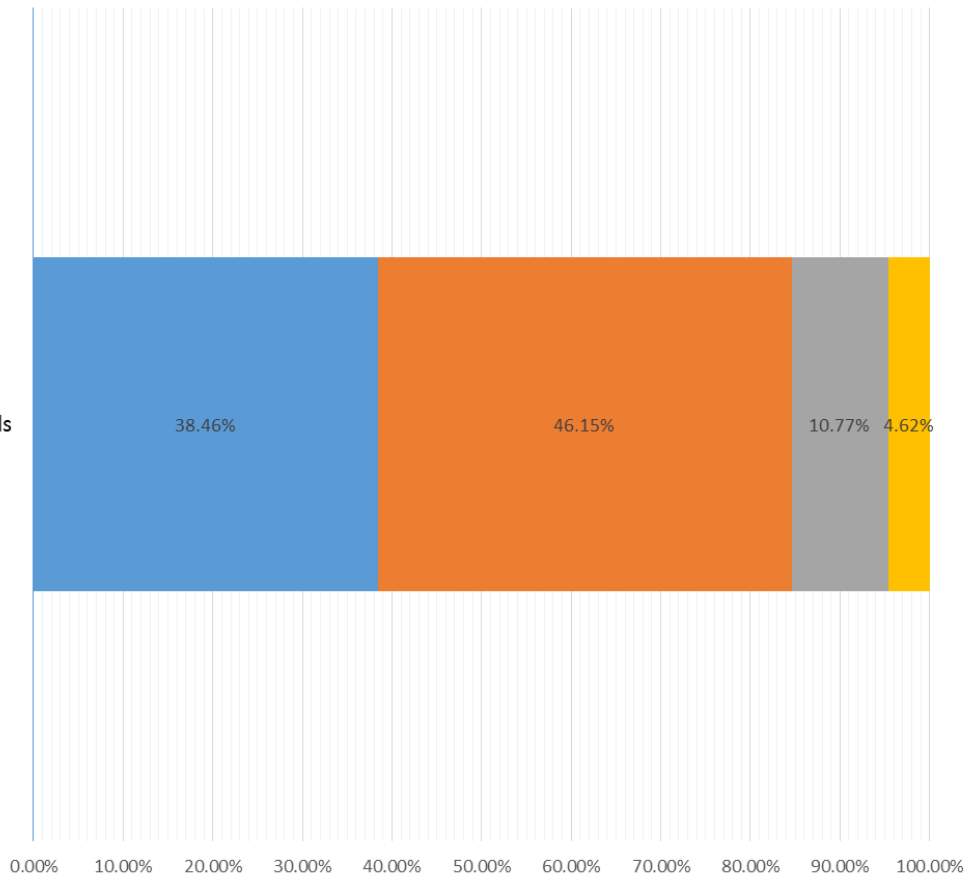


Workshop

Perceived training requirement

■ Totally Agree ■ Agree ■ Neutral ■ Disagree ■ Totally Disagree

I expect most staff will need formal training on the data tools

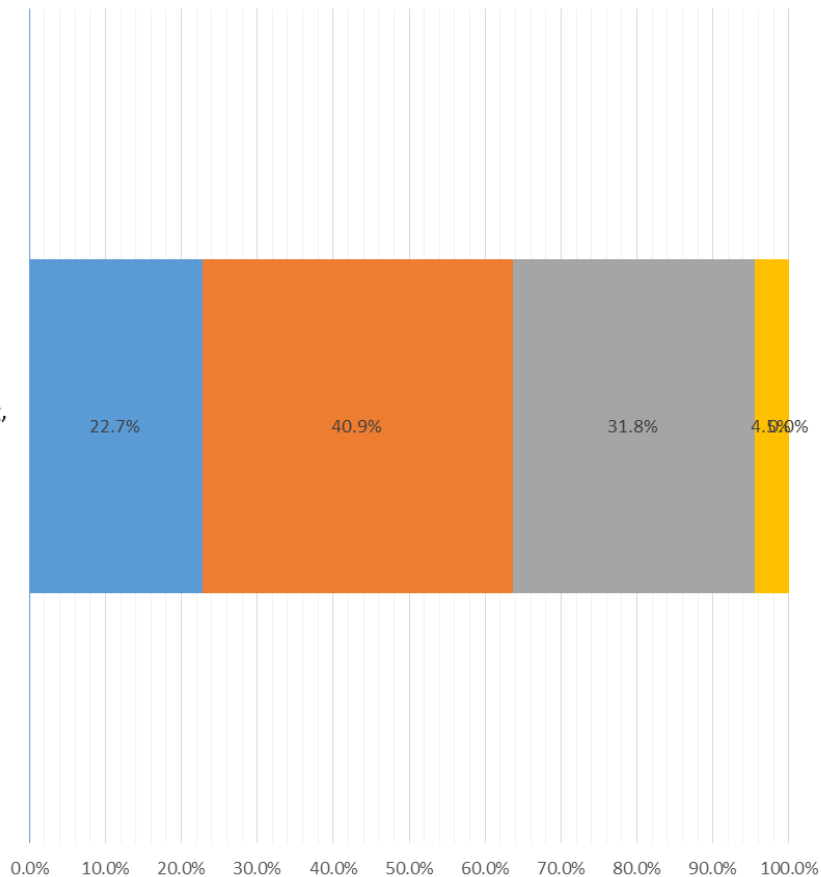


Support meetings

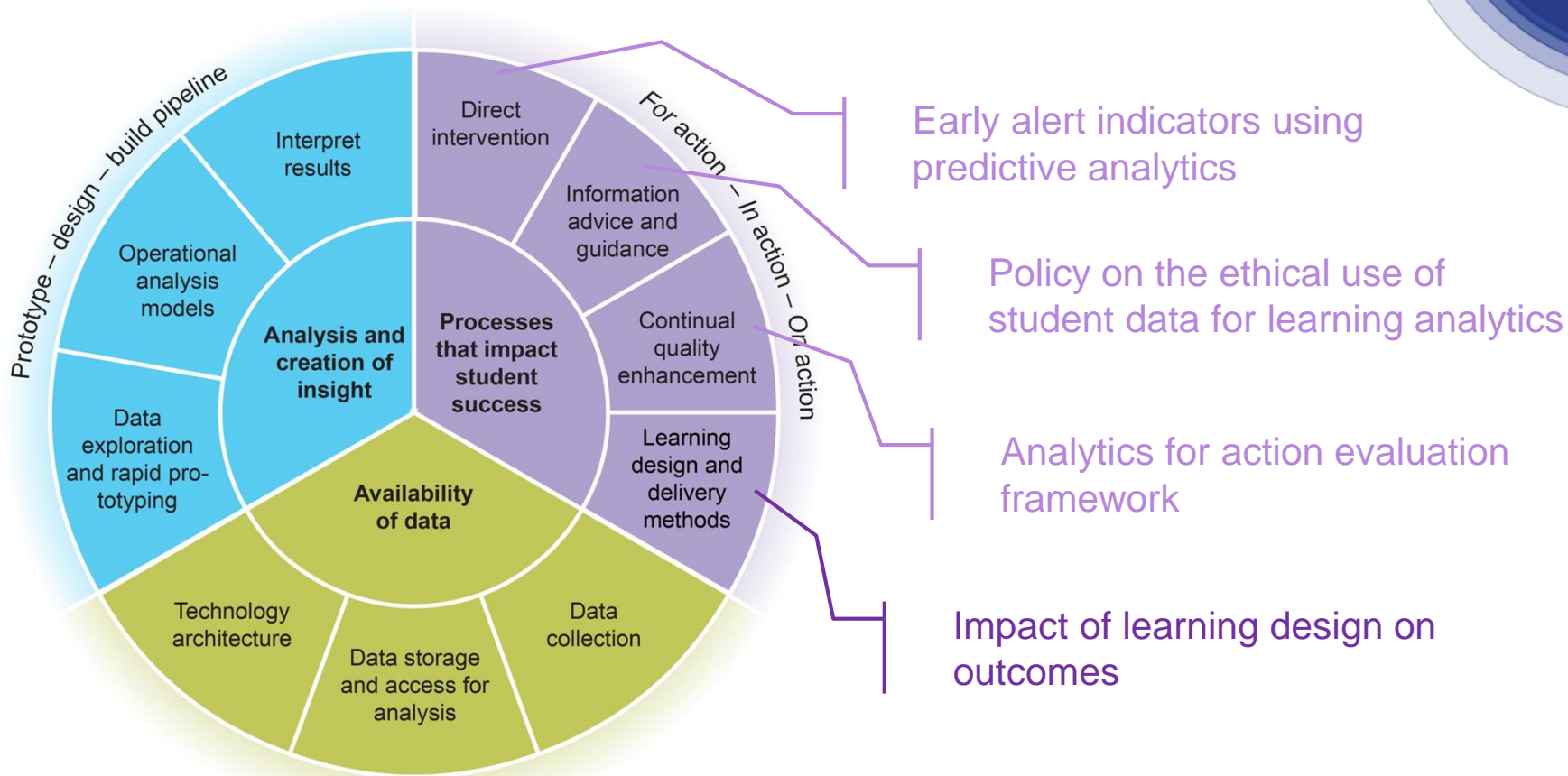
Perceived Training Requirement

Strongly Agree Agree Neutral Disagree Strongly Disagree

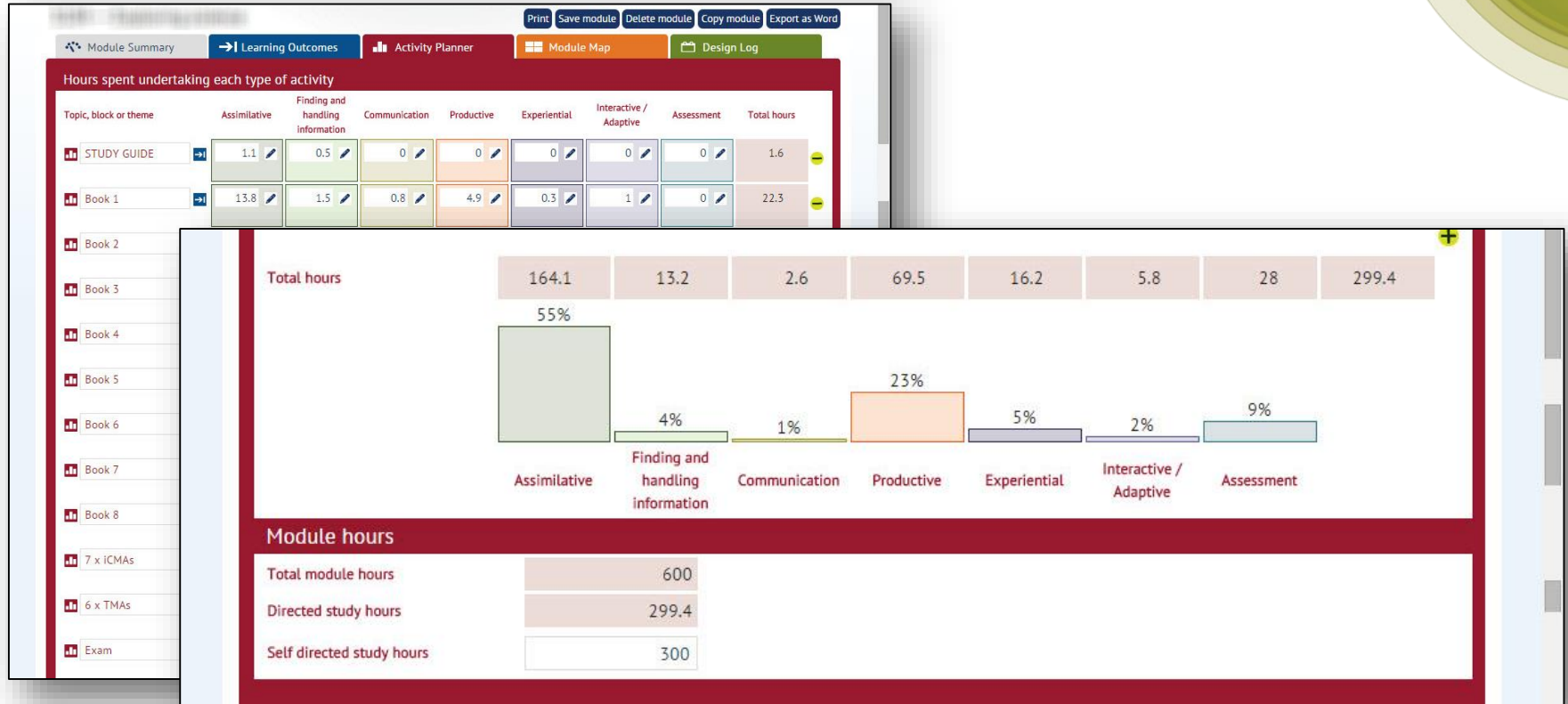
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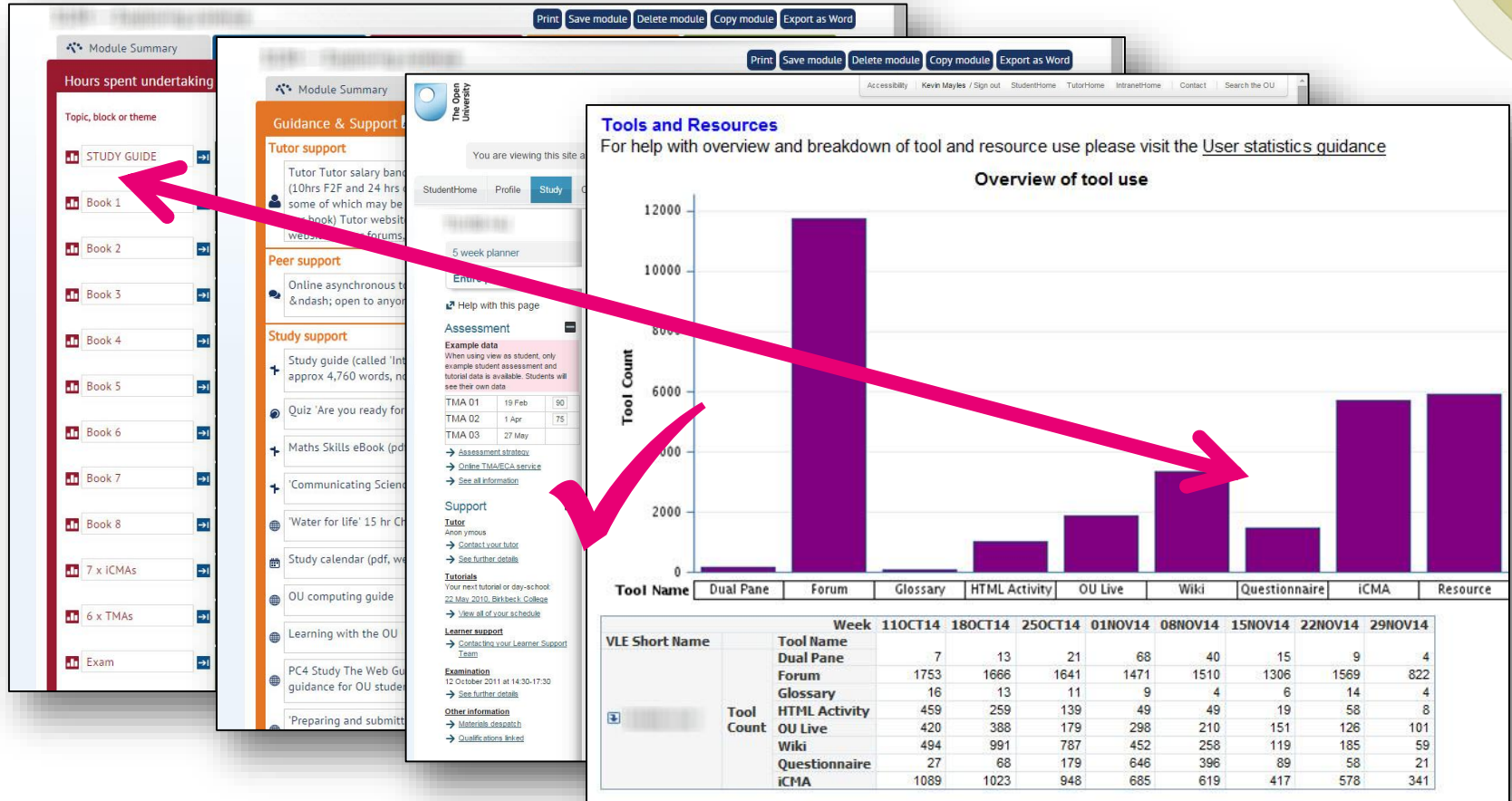
Analytics enhancement strategy



Learning design link to success



Learning design link to success





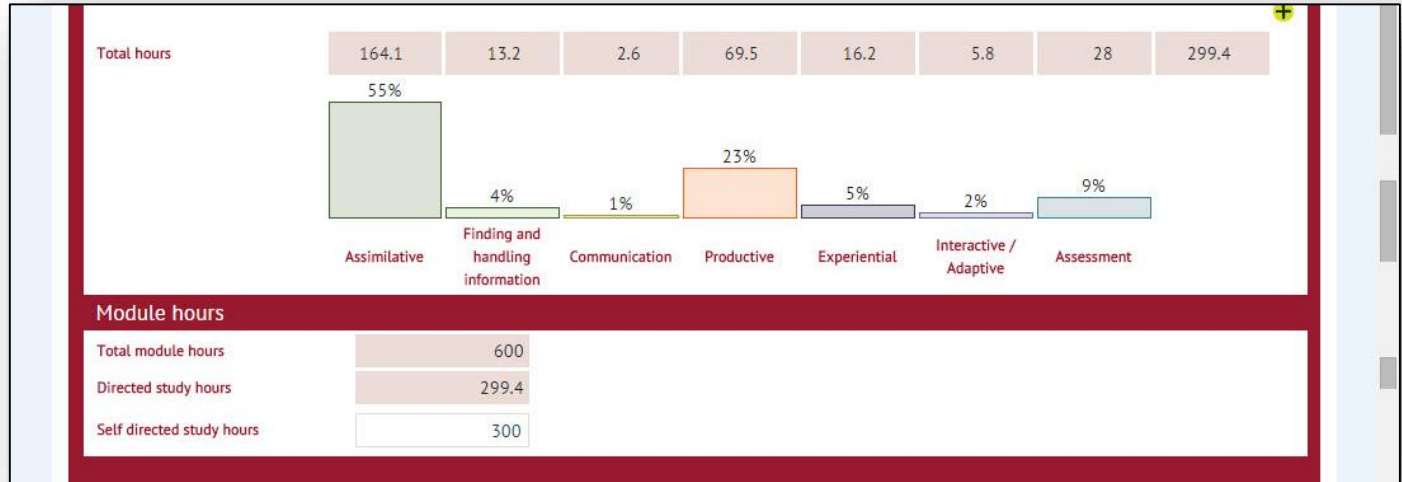
Constructivist
Learning Design

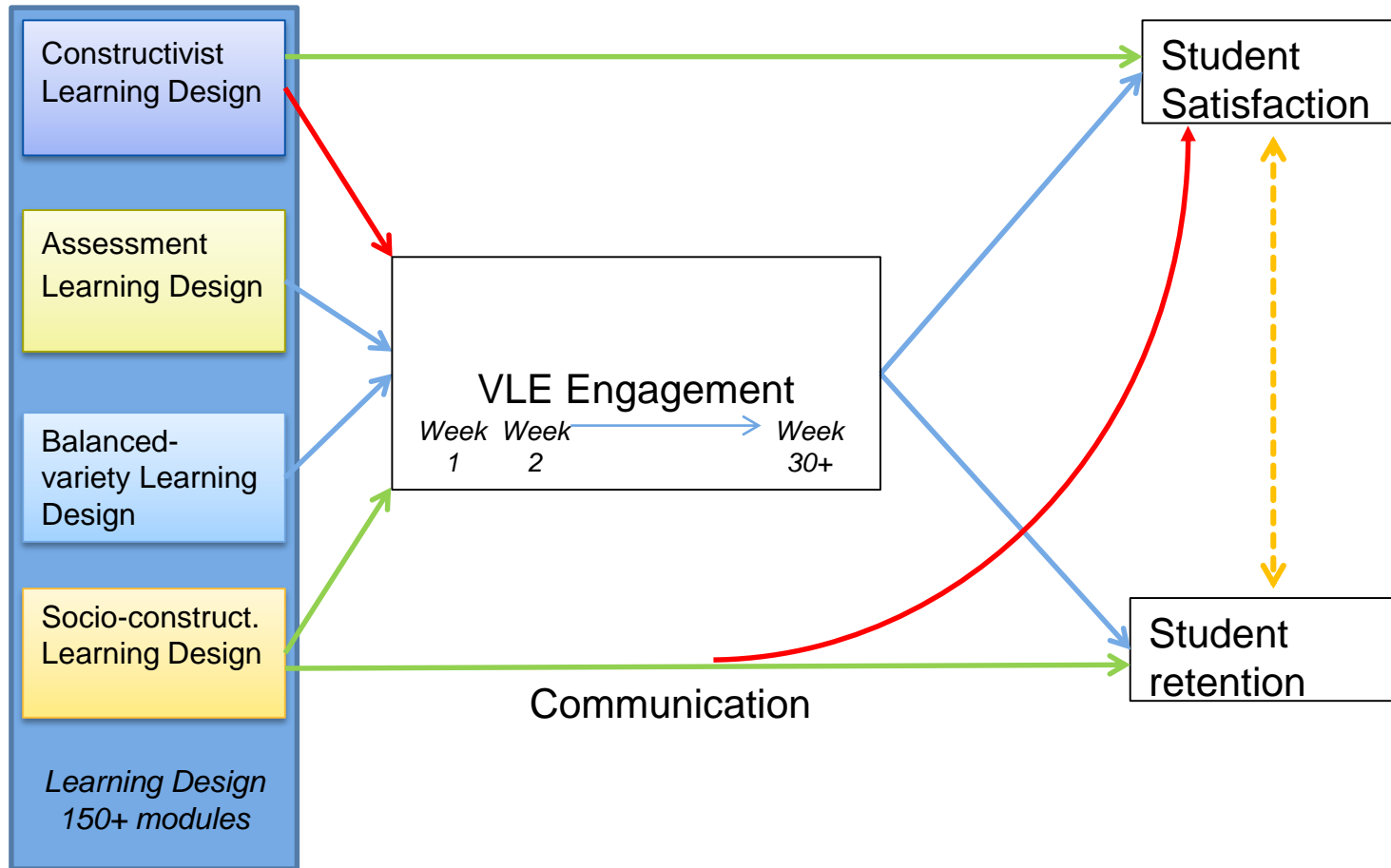
Assessment
Learning Design

Balanced-
variety Learning
Design

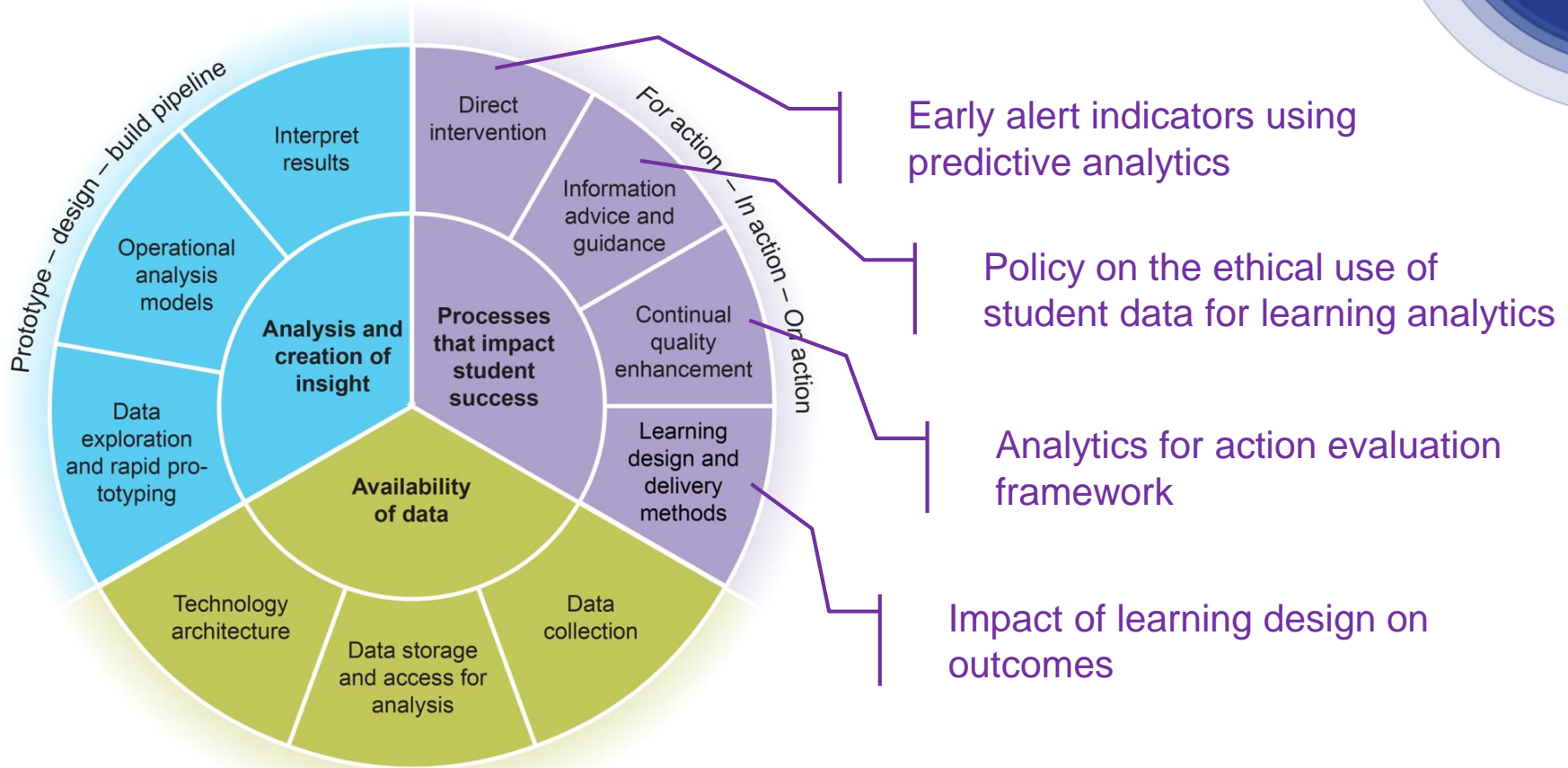
Socio-construct.
Learning Design

Learning Design
150+ modules





Analytics enhancement strategy



Blackboard "A successful analytics implementation is a cultural challenge, not a technological one." - Mike Sharkey, VP of Analytics, presenting at the AIR Forum



Are there any questions?



For further details please contact:

- Kevin Mayles – kevin.mayles@open.ac.uk
- @kevinmayles
- Slideshare: <http://www.slideshare.net/KevinMayles>
- OU Analyse: <https://analyse.kmi.open.ac.uk/>

Acknowledgements:

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Zdenek Zdrahal, Rebecca Ward, Clare Sparks

References:

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