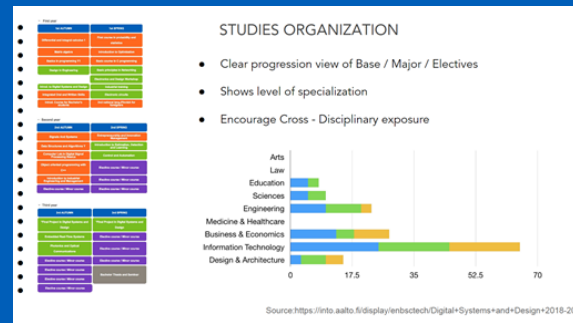


Data-driven approach to developing support processes for learning, teaching and management in HE:

Modeling factors affecting study success from large-scale study-related data

Amanda Sjöblom & Jiri Lallimo,
AnalytiikkaÄly

21.8.2020 Pedaforum



Outline

- **What to do we want and why?**
 - Analytics to support learning and service processes utilizing actual stakeholder needs
- **About the data**
- **What could be done? Examples of predictability**
- **Future: views and aims**

Data-driven approach to developing support processes for learning, teaching and management in higher education?

What it could be:

Based on **understanding first the process and its** critical elements/phases (e.g. un-/successful course activity or advising process), **then defining the data and model** to understand and reveal important elements, in order to support the staff and student to **get to the better learning track by interventions**

What it should not be:

Big Brother –monitoring

Emphasis to ensure learning and teaching effectiveness **only from managerial view**

Lack of explicit openness of the analytics process (access to data, data and models used, interventions and decisions made)



AnalytiikkaÄly and learning analytics

FOCUS: SUPPORTING STUDY PATH

- User groups participate in expressing their needs for La and designing the views and functionalities.
- Combining data from different sources, e.g. student-register data, LMS, personal study experience
- Juridical and ethical elements
- Analytics with interventions

Institutional goals, funding, economy, long-term perspectives, informed decision-making

University management and administration

Guidance, counseling, developing teaching and study services

Faculty / program management

Monitoring, assessing, pedagogical design, guidance and support for learning

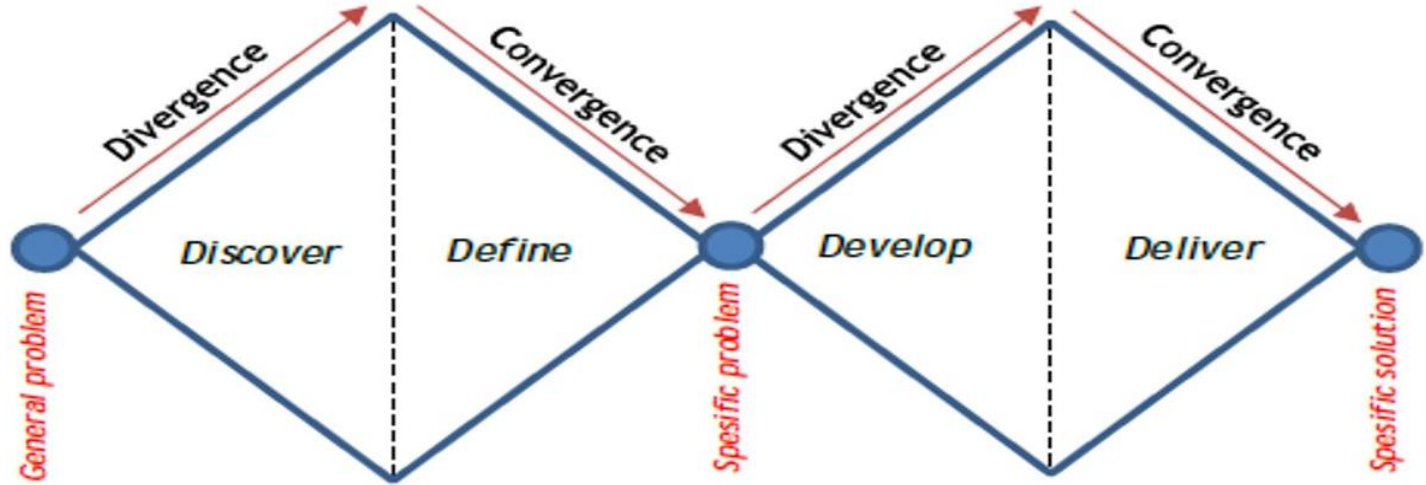
Teaching and Academic guidance


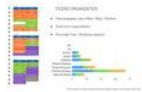


Self-regulated learning: planning, setting goals, monitoring, evaluating

Student

Stakeholder needs & views

Double Diamond model adopted from the British Design Council



	Research	Insight	Ideation	Prototype
Aim	Stakeholder needs	Concept dev.	Concept refinement	Piloting and testing
Methods	Workshops/ Hackathon Interviews Service design courses Questionnaires	Workshops/Hackathon Journey mapping Personas Uni Service process dev	Proto tech dev UX University policy work Analytics fit to processes	Prepare to implement Proto tech dev UX University policy work
Outcomes	Ideal study path Critical phases/elements	LA concepts Dashboard mockups Juridical & ethical	Prototype for piloting	Prepare for production University policy
				

Data throughout the study journey:

How does it relate to supporting learning and teaching?

Connections of individual and group level data, with university-level information

Registry data

Background
Previous studies
Study progression
Study plan
Study exchanges
...

Programme data

Requirements
Curriculums
Programme aims and learning outcomes
...

Course data

Learning outcomes
Teaching methods
Course work /exams/deadlines
Prerequisites
...

Feedback data

Course feedback
Other questionnaires
...

Case: Bachelor feedback analytics

Where to start?

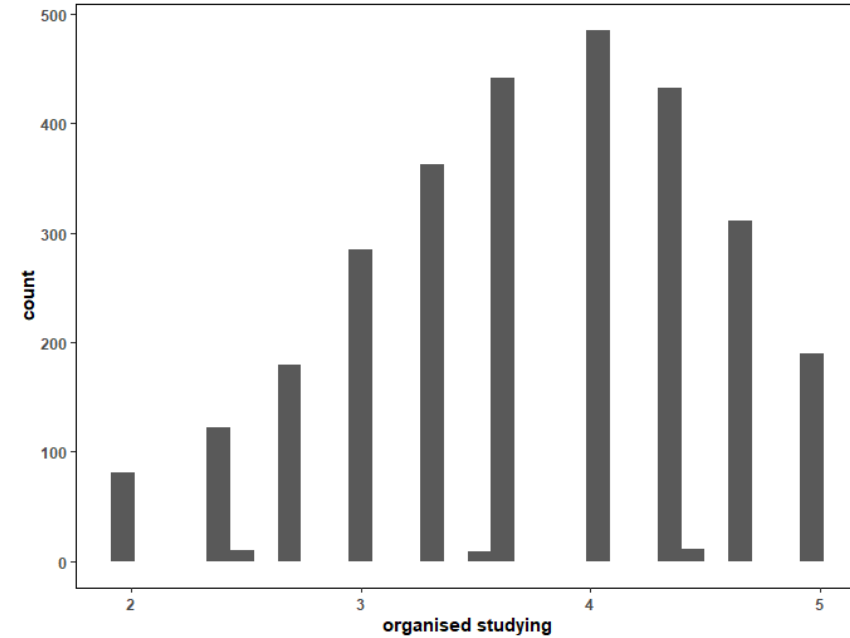
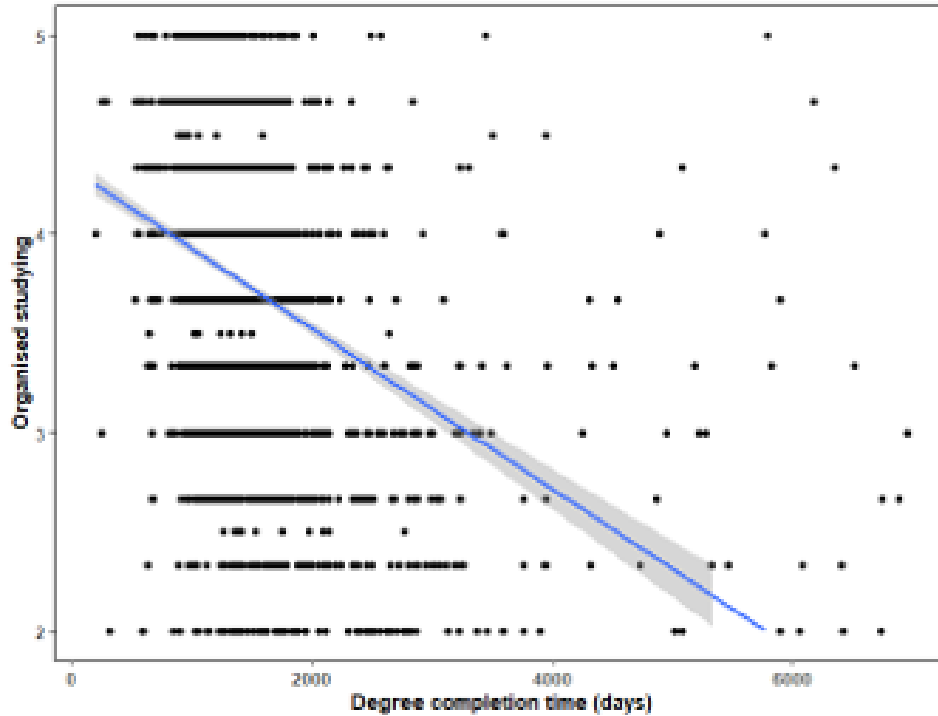
- Getting data
- Mapping data
- Exploring data
- Cleaning data

Case with an example dataset
with ~3000 cases

Organised studying
Deep approach
Surface approach
Self-efficacy
Study related exhaustion
Interest and relevance
Peer Support
Alignment
Constructive feedback

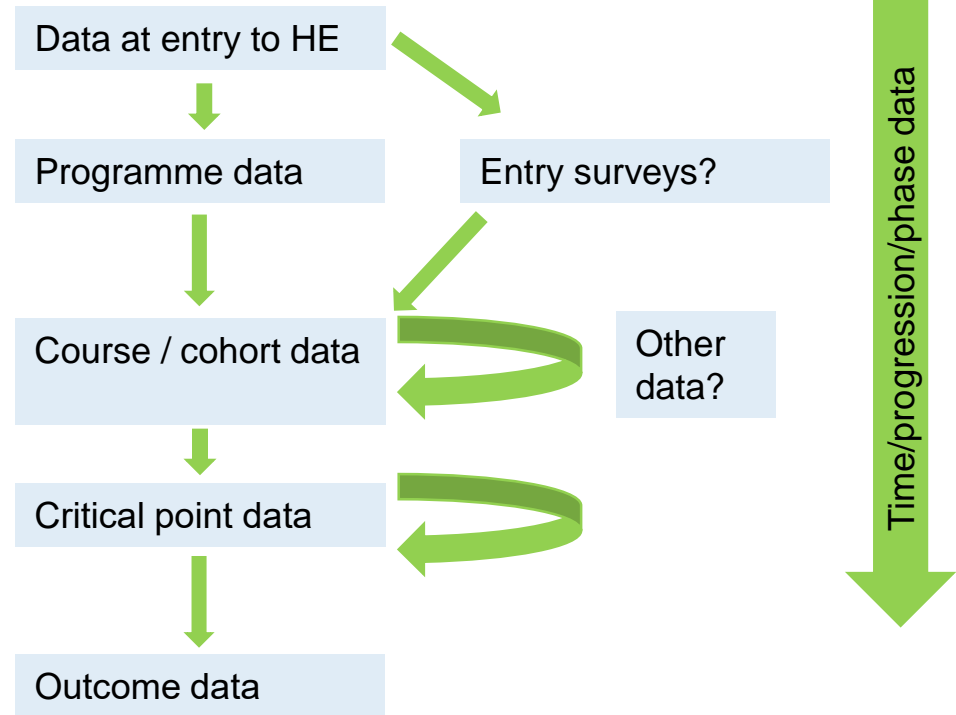
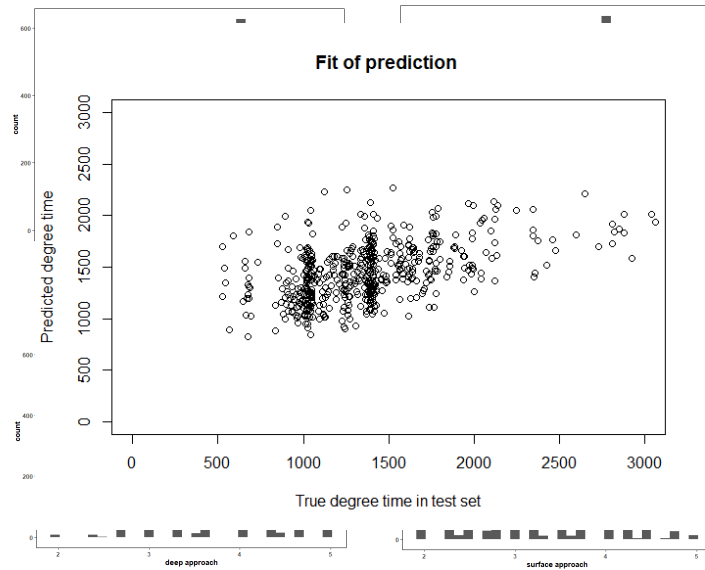
Study area
Study duration
GPA

So, what can be done already?

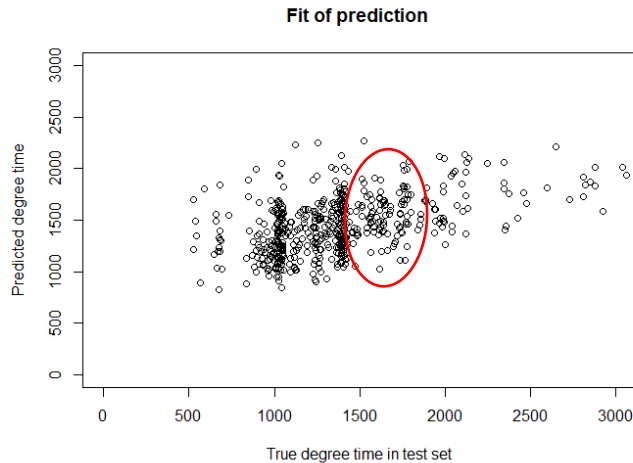


When we can account for more variables....

But that is still a one-off! Where's the action?



When we can account for more variables....



But that is still a one-off! Where's the action?

Clean, connect, examine, scale

->

Model, identify clusters, identify predictors of different outcomes

->

Specify, define and find action point

->

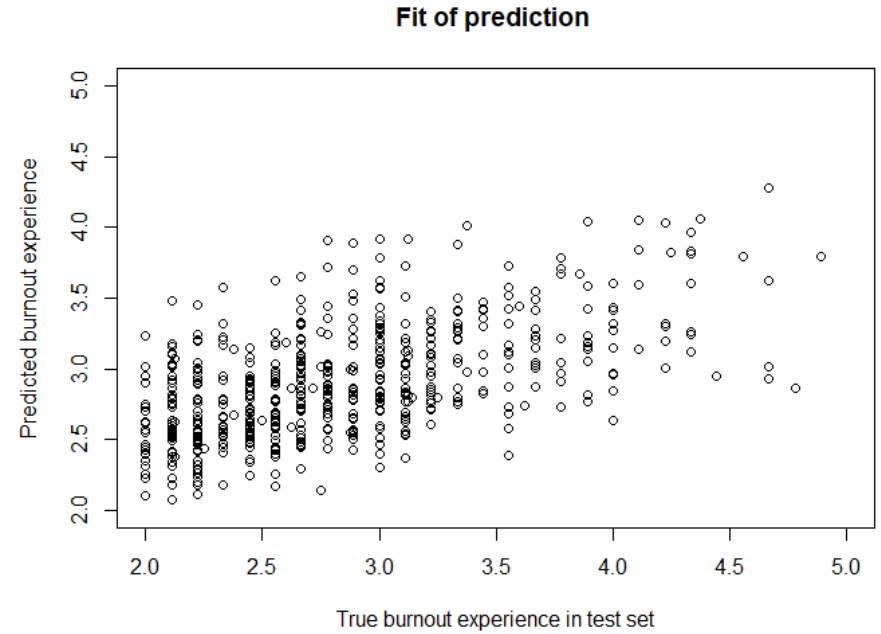
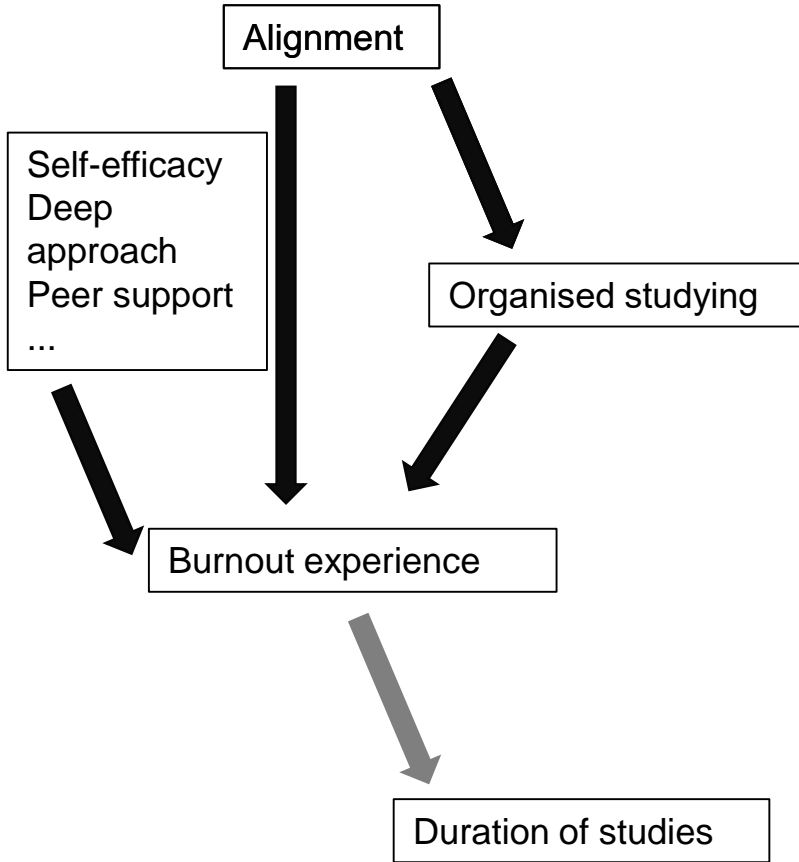
Test, refine

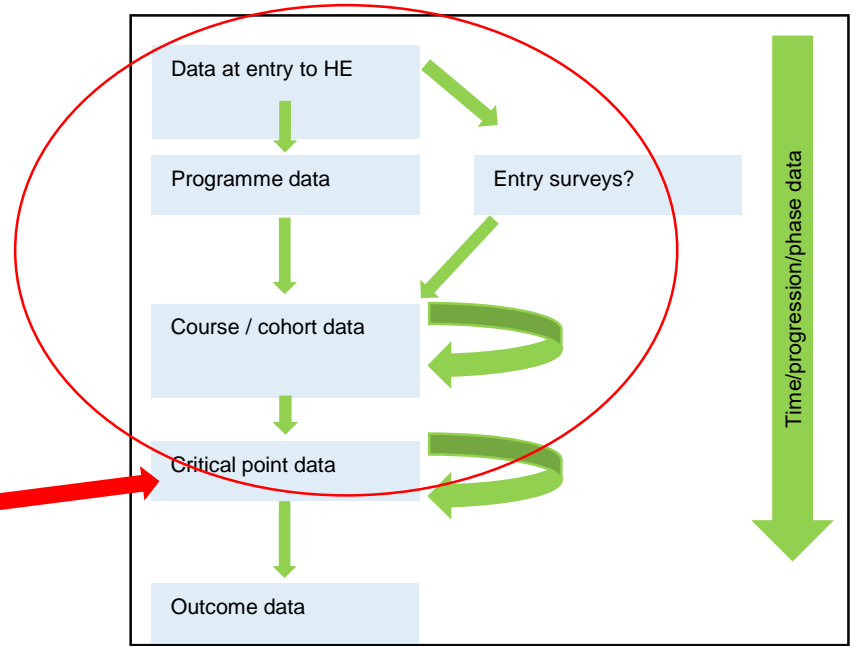
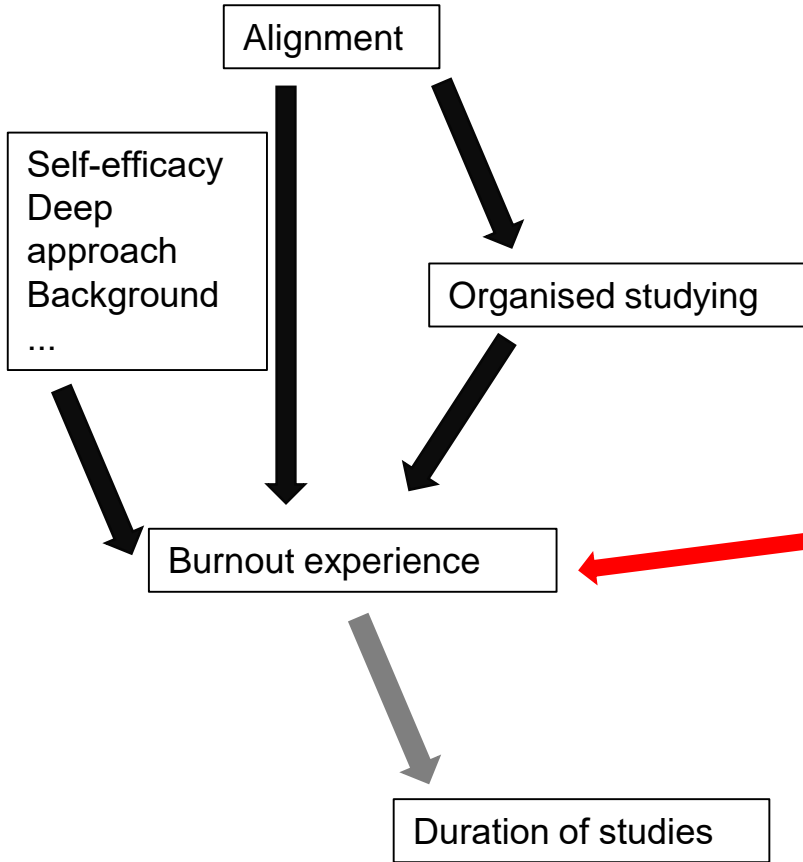
->

Alert, guide

Aren't you forgetting all the important things?







Interventions!

So what do we do with all that?

- Group level interventions
- (Individual level)
- Redesigning teaching, advising, curriculum planning

Analytics results bring up the situation, predictions or even recommendations.

The results are wasted, if the interventions are missing / ineffective / faulty / cause uncertainty or anxiety

For example: after signs of dropping out of studies, how to contact the student and how to scaffold the next steps?

Okay, what's next?

- More extensive combining and use of available data can provide a more comprehensive view into the factors related to study success (including graduation and wellbeing) and provide information for planning and implementing different support solutions.
- The road ahead will involve design of learning and service process in coordination with possibilities of analytics.
- No easy wins, means iterative exploration with analytics.
- Resources needed for analytics in higher education organizations
- **Knowledge-driven, data-supported**

Find out more:

AnalytiikkaÄly:

analytiikkaaly.fi

Twitter/Facebook: @AnalytiikkaAly

amanda.sjoblom@aalto.fi

@sjoblom_amanda

jiri.lallimo@aalto.fi

@JiriLallimo

We are investigating views about and needs for instructional material relating to digital tools and learning analytics.

You can participate here:

<https://link.webropolsurveys.com/S/36BB2F00A00835A4>

