Personalized feedback to students and lecturers using IGuideME

Feedback GO

SURF

UNIVERSITY OF AMSTERDAM

university of groningen

VU VRIJE UNIVERSITEIT AMSTERDAM

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EPIC 31st May 2022

www.feedbackgo.nl

Problem

Personalized feedback is important for the learning process, but it is **time consuming** and particularly **problematic in large-scale courses**.

While automated feedback may help, not all forms of feedback are effective. Social comparison can offer powerful feedback, but **is often loosely designed**.

Solution

We argue that **intertwining feedback with proper peer comparison** using the learning analytics dashboard I Guide My Education (IGuideME) provides a solution.

Learning Analytics Dashboard **I Guide My E**ducation - IGuideME

- Students: activate, motivate, personalized feedback
- Lecturers: early warning system, optimize course design/the use of educational tools

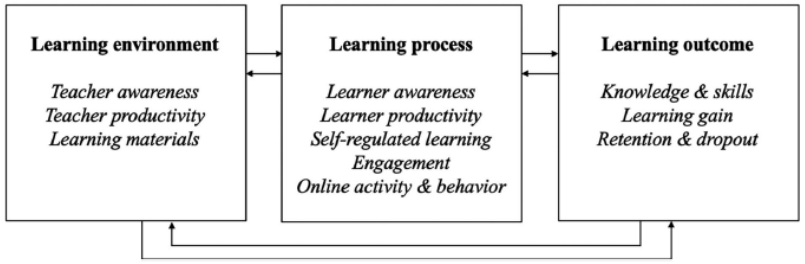


Fig. 5. Refined classification scheme for operational definitions of learning affected by learning analytics interventions.

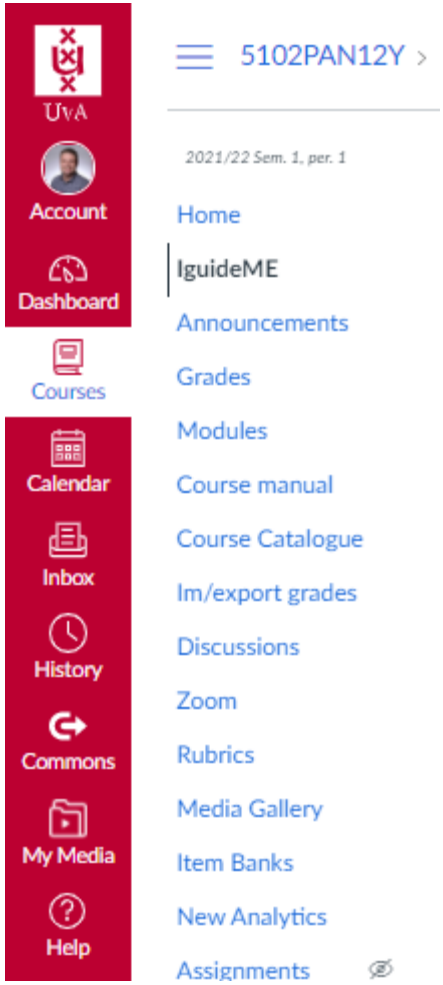
Knobbout&Van der Stappen 2020

Open Source software, easy adjustment to personal needs, embedded in learning management system

I Guide My Education - IguideME

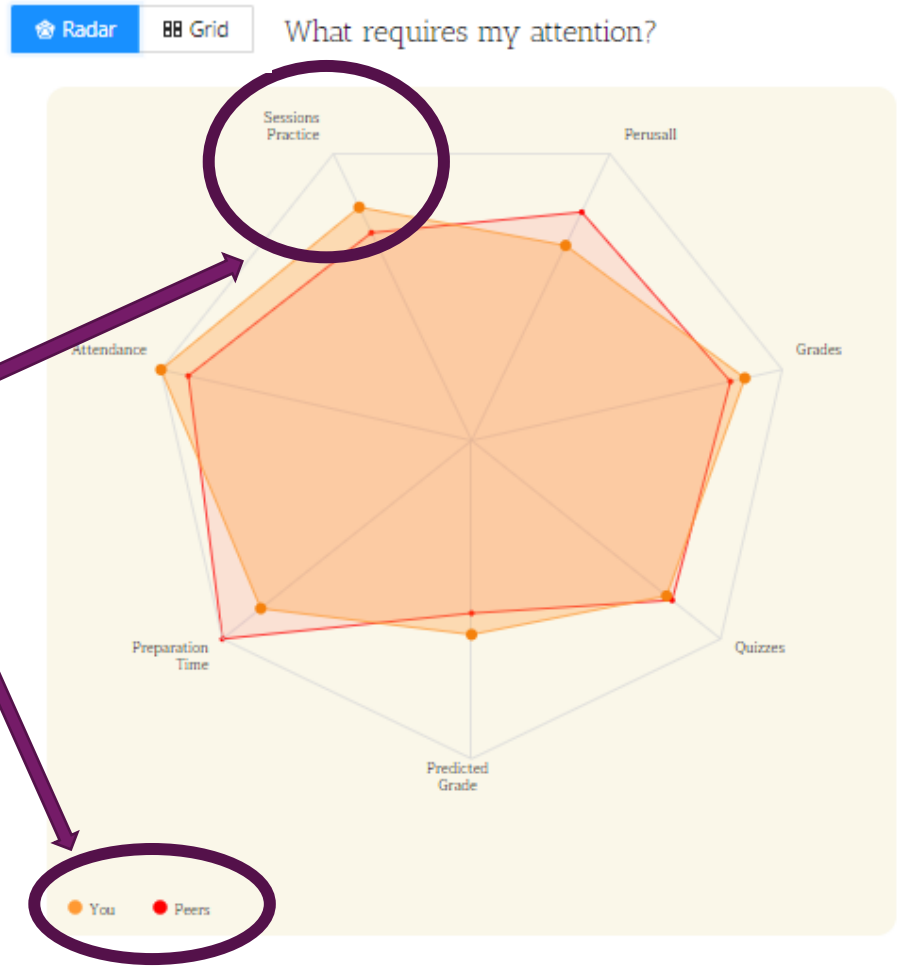
- Students: activate, motivate, personalized feedback
- Lecturers: early warning system, optimize course design/the use of educational tools

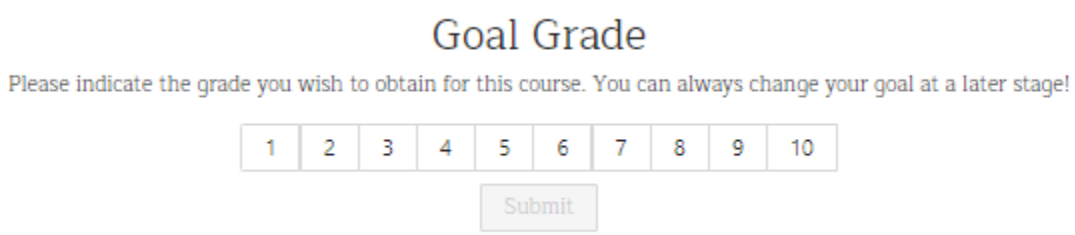
IGuideME: open source software, embedded in Canvas



Student dashboard: Radar view

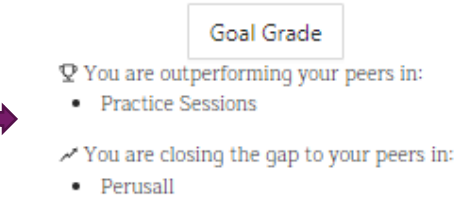
A peer comparison is made, based on the student's goal grade





Students set a goal grade themselves at the start of the course

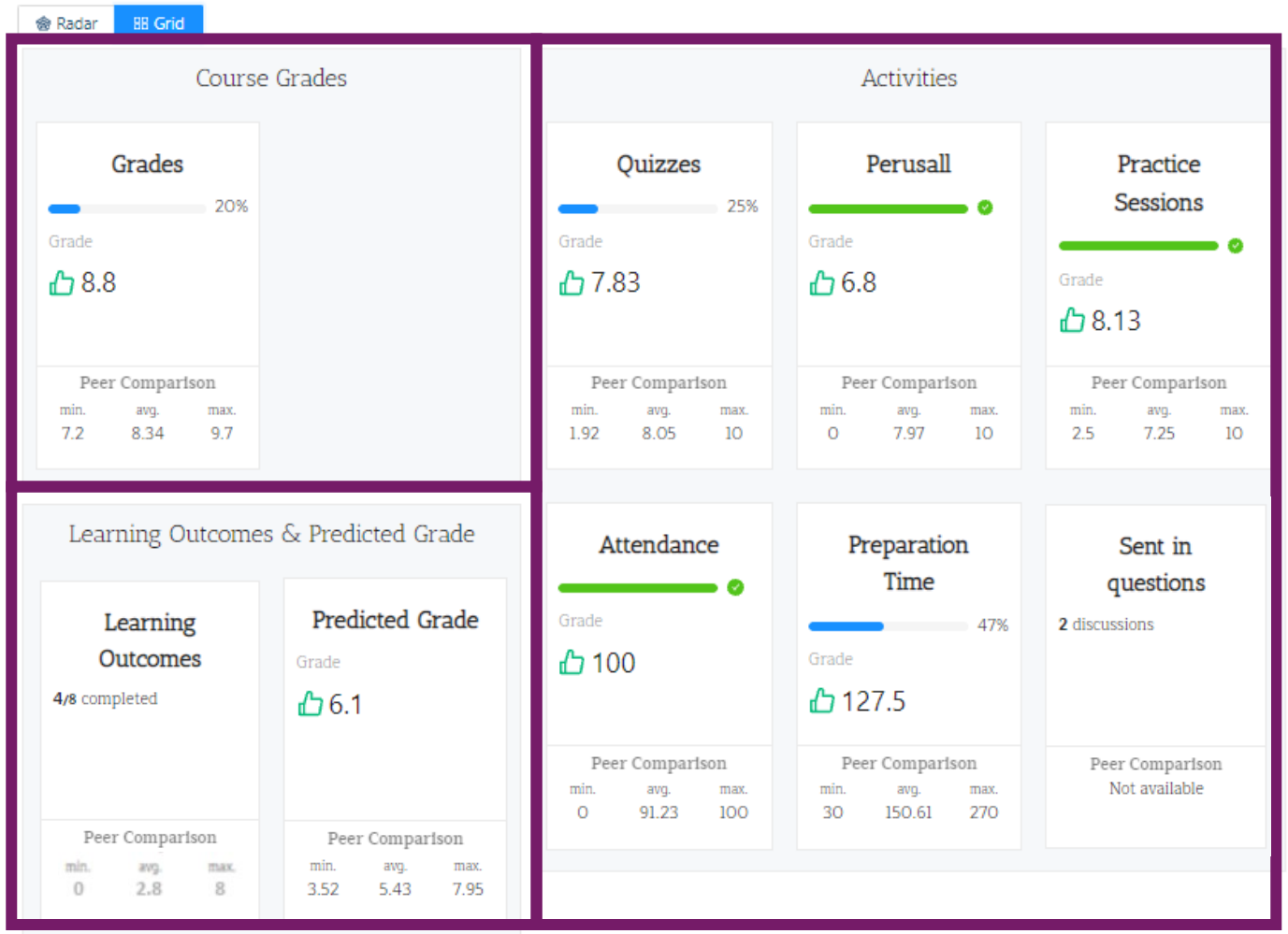
Notifications provide information about progress



Student dashboard: Grid view

Summative assessments

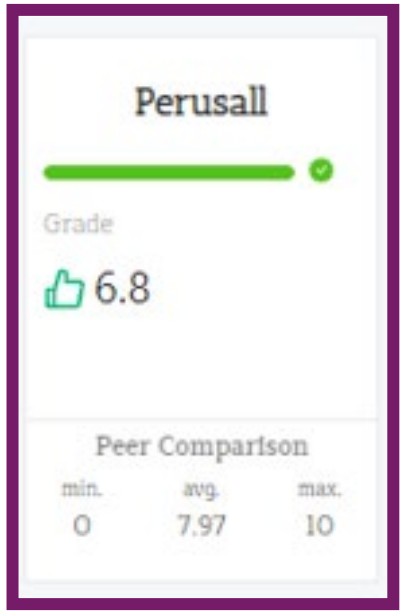
Learning outcomes and predicted grade



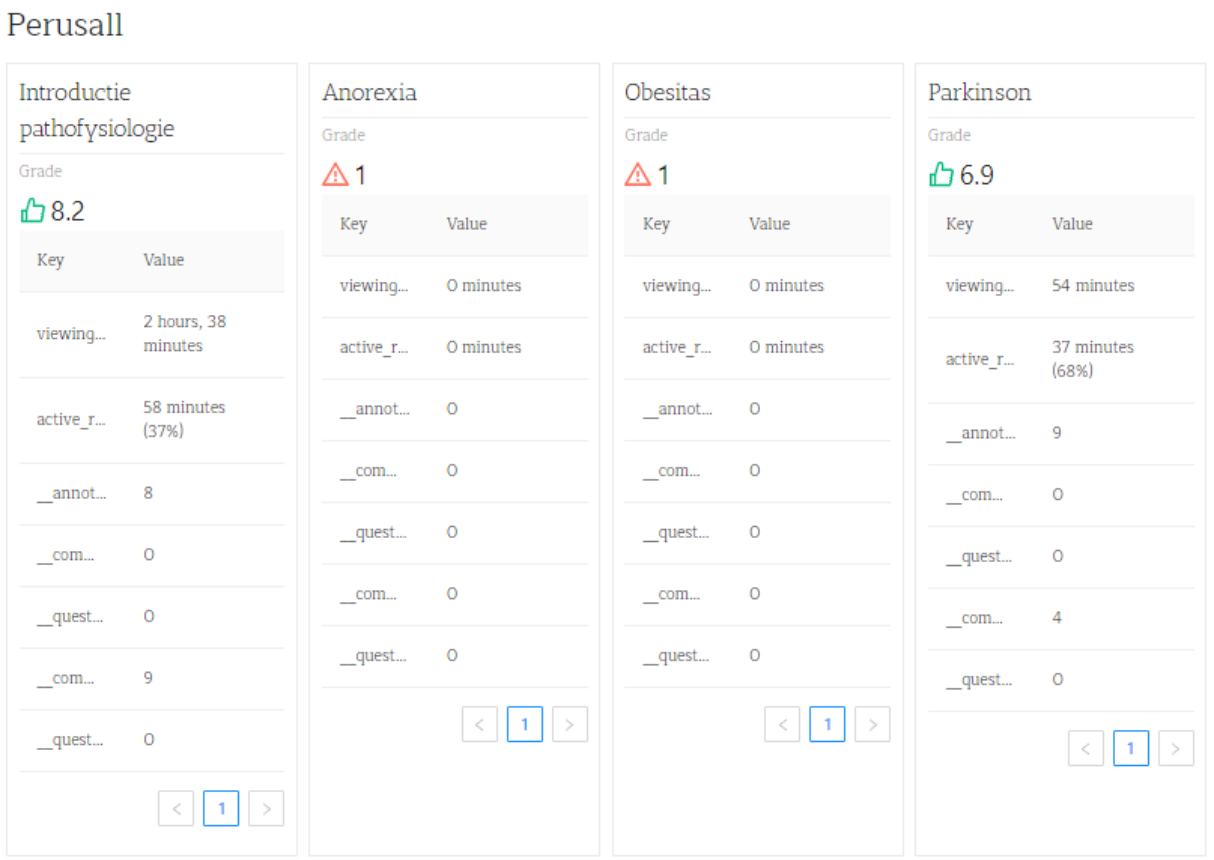
Formative assessments

Formative assessments

Student dashboard

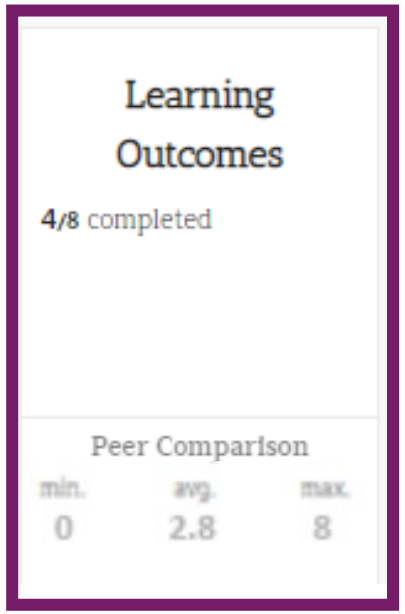


Click on tile: more info



Learning outcomes

Student dashboard



Click on tile: more info

Goal 0 — Completed

de kernbegrippen uit de farmacokinetiek (halfwaardetijd, verdelingsvolume e.d.) onderscheiden en toepassen

Deeltoets 1 ≥ 5.5

Goal 1 — Completed

de kernbegrippen uit de farmacodynamiek (receptoraffiniteit, agonisme, antagonisme, concentratie-responsrelatie e.d.) onderscheiden en toepassen

Deeltoets 1 ≥ 5.5

Goal 2 — Completed

farmacokinetische en farmacodynamische eigenschappen van neurofarmaca evalueren om zo te interpreteren hoe deze van belang zijn voor de farmacotherapeutische toepasbaarheid en effectiviteit van deze (potentiële) geneesmiddelen

Deeltoets 1 ≥ 5.5

Goal 3 — Not completed

uitleggen (in een presentatie) welke (biologische) processen leiden tot de klinische verschijnselen van hersenaandoeningen

Perusall ≥ 5.5
Presentatie ≥ 5.5
Deeltoets 3 ≥ 5.5
Deeltoets 2 ≥ 5.5

I Guide My Education - IguideME

- Students: activate, motivate, personalized feedback
- Lecturers: early warning system, optimize course design/the use of educational tools

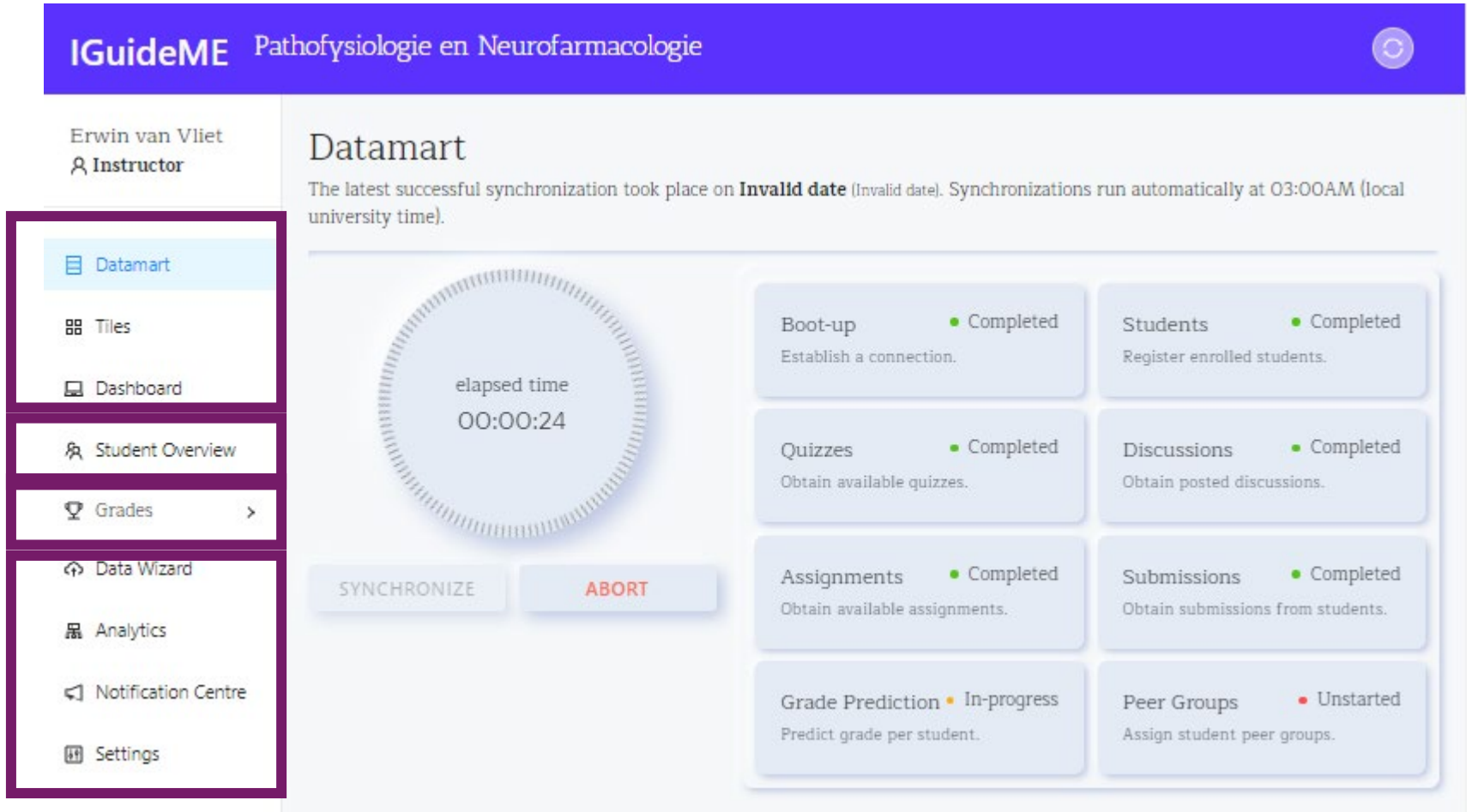
Lecturer dashboard

Design

Early Warning System

Grade analysis

Interaction



Early warning system

Lecturer dashboard

Student Overview

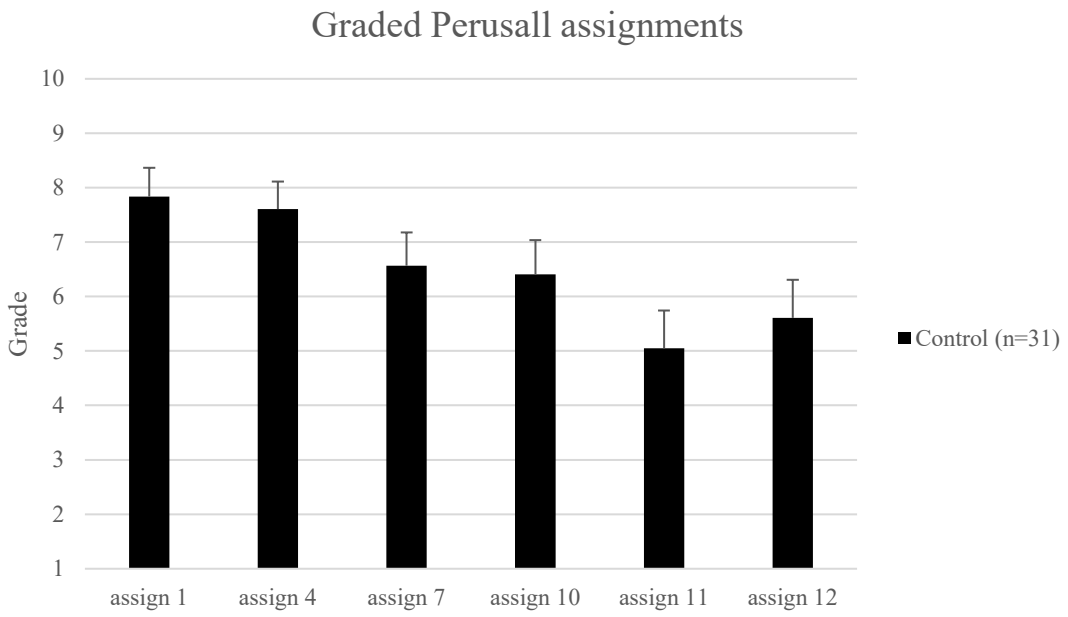
Early Warning System to quickly identify students who may drop out

Student	Quizzes				Perusall			Attendance	
	Quiz 1: Anatomische termen van positie	Quiz 2: Macro Anatomie	Quiz 3: Neurotransmitter systemen	Quiz 4: Micro anatomie	Assignment 1	Assignment 2	Assignment 3		WCFD8en9sept
Adena Spraggins	6.89	...	...	...	7.0	8.3	8.0	19 86%	5.4
Adria Laven	6.89	7.14	6.71	4.28	7.5	4.28	10.0	15 68%	7.1
Alyson Burkey	5.89	7.43	4.5	3.16	8.8	9.3	8.7	20 91%	7.5
Ana Demayo	5.83	7.1	4.29	4.45	7.6	8.2	9.5	21 95%	6.8
Analisa Gathright	7.33	8.65	5.86	3.95	9.2	7.2	8.5	21 95%	7.9
Austin Guilbault	9.25	8.15	6.14	6.08	9.4	10.0	7.6	20 91%	8.6

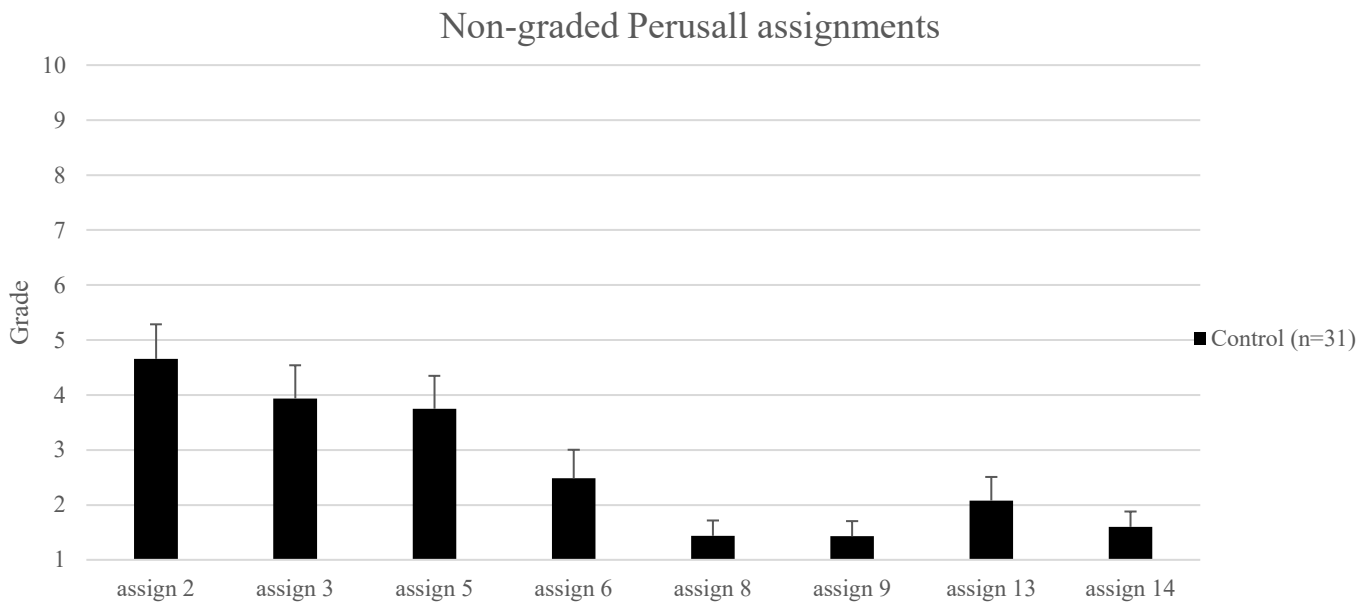
Optimize course design: graded vs non-graded Perusall assignments

#

Average of all assignments is 2% of the final course grade



Grade is not shown to students, only to researchers



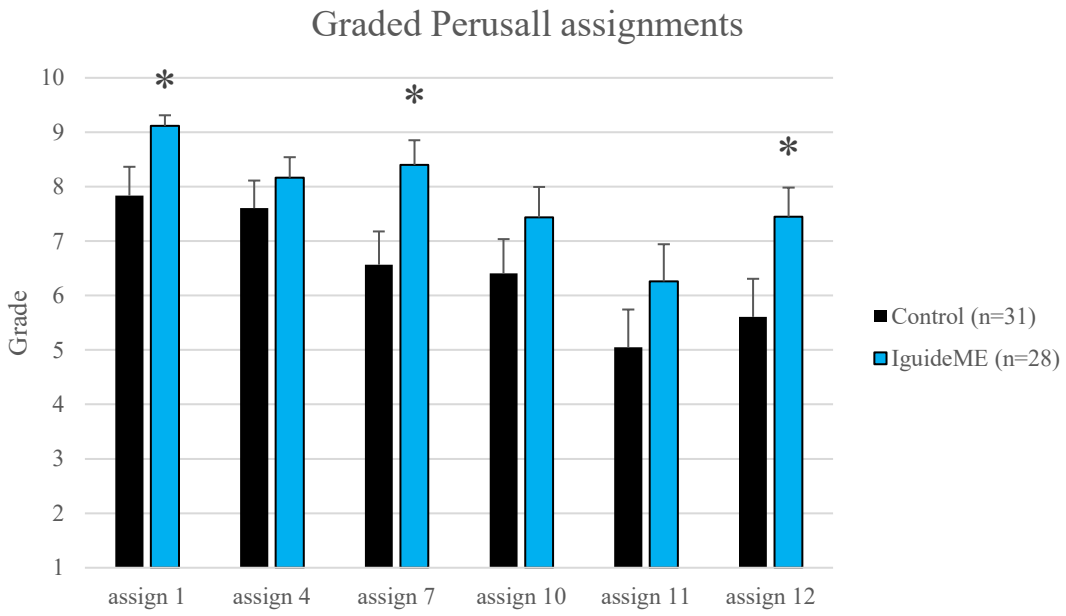
Recommendation: grade the Perusall assignments!

Optimize course design: IGuideME group shows better performance for graded as well as non-graded Perusall assignments

Higher annotation content score, while opening assignments, (active) reading time, getting responses or upvotes was not different between groups

#

Average of all assignments is 2% of the final course grade



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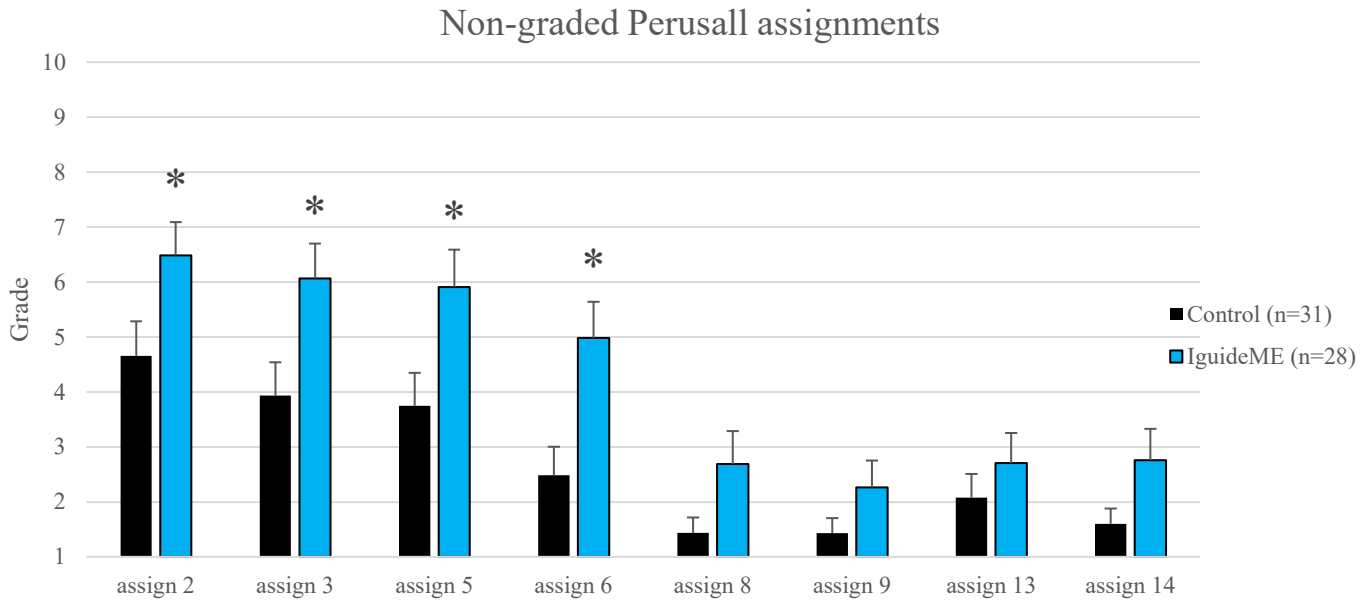


Recommendation: grade the Perusall assignments!

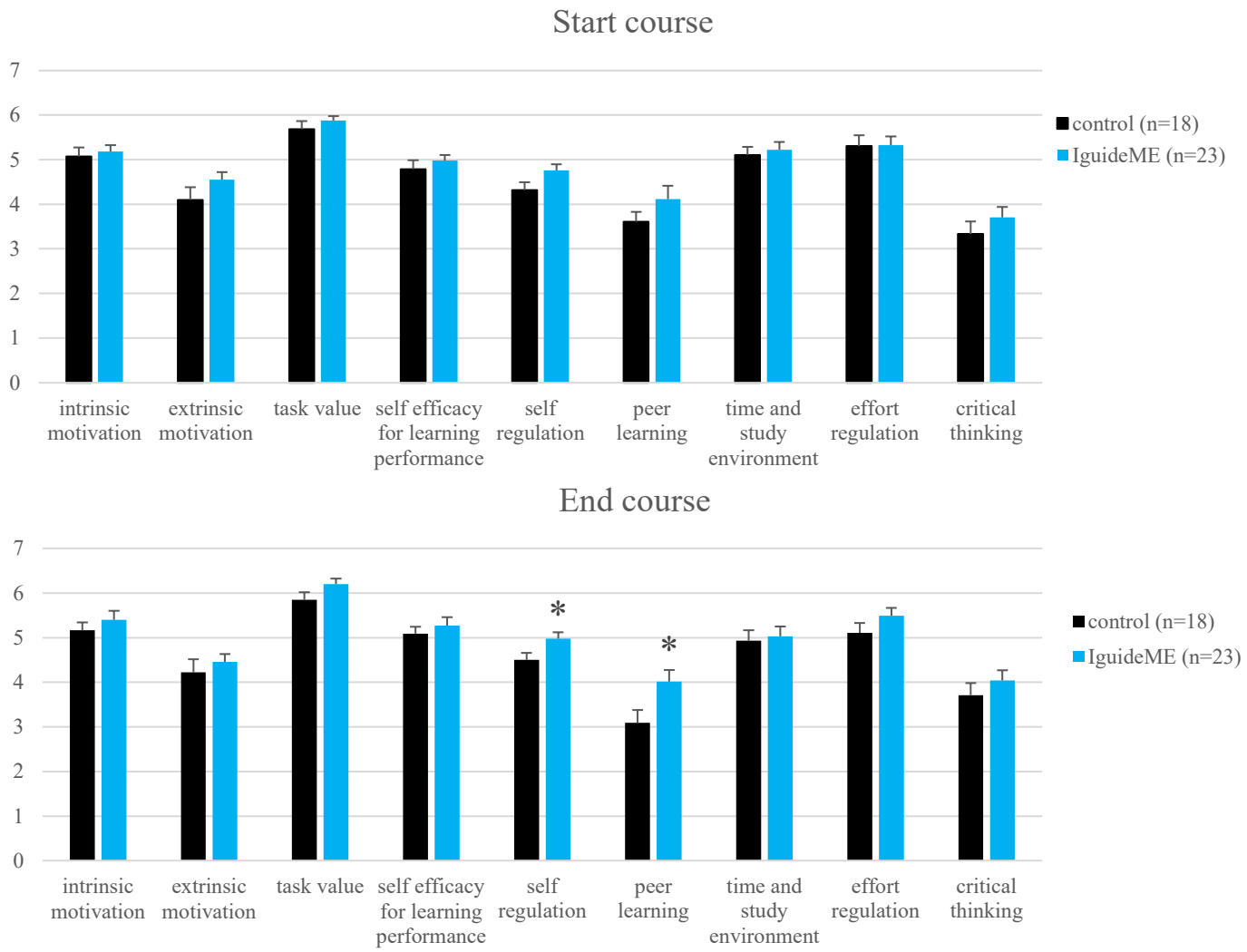
* Difference between IguideME and control group ($p<0.05$)

\# Difference between Graded and Non-graded assignments ($p<0.05$)

Effects of IGuideME

- The Motivated Strategies for Learning Questionnaire (MSLQ) - validated questionnaire to measure the types of learning strategies and academic motivation (Pintrich 1991)
- Achievement Goal Model (AGM) – validated questionnaire to measure goal achievement (Elliot 2011)
- Grades
- Student evaluation

MSLQ: IGuideME group shows more self-regulation and peer learning



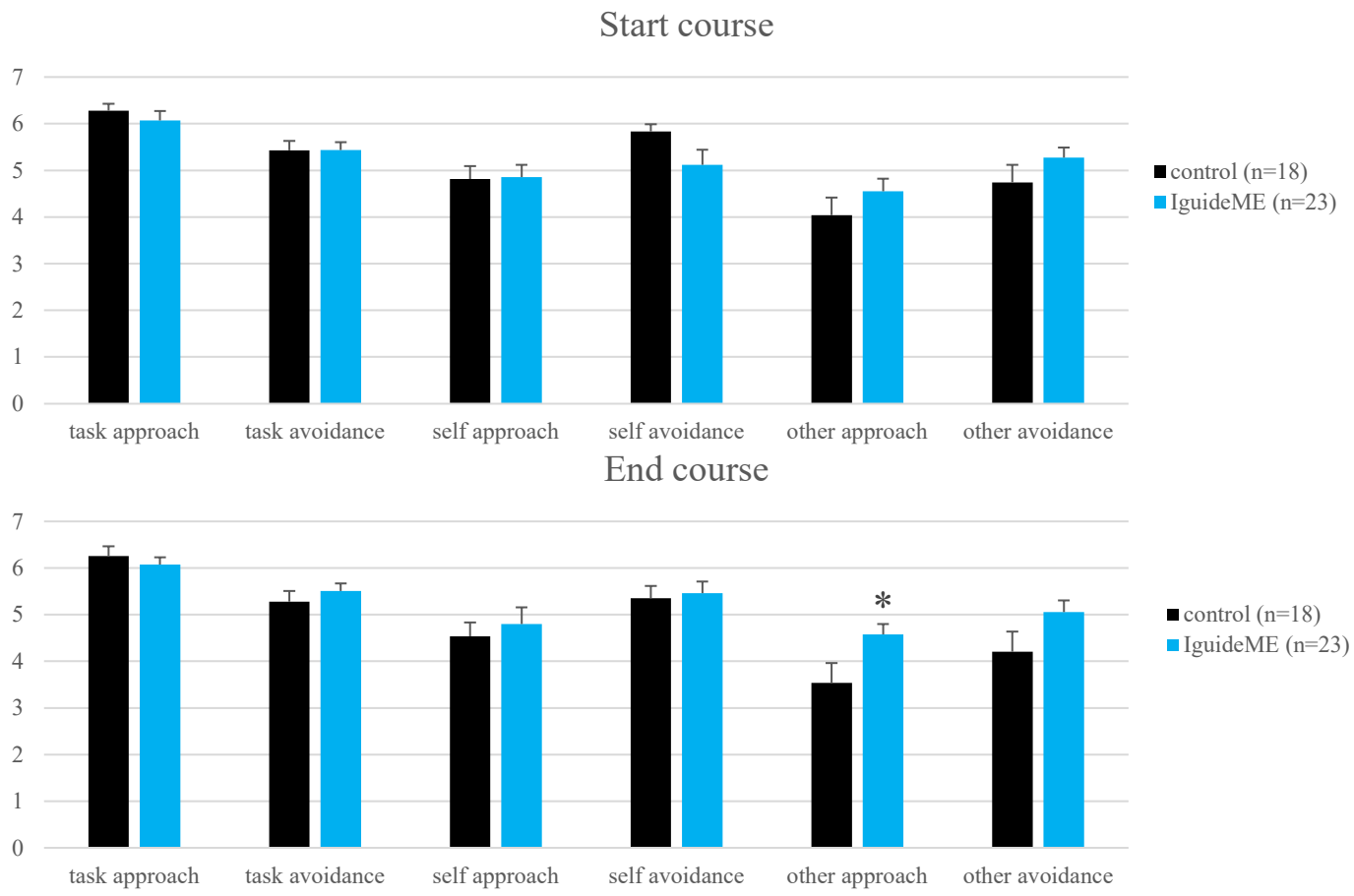
Cognitive and Metacognitive Strategies: Metacognitive Self-Regulation

Metacognition refers to the awareness, knowledge, and control of cognition. We have focused on the control and self-regulation aspects of metacognition on the MSLQ, not the knowledge aspect. There are three general processes that make up metacognitive self-regulatory activities: planning, monitoring, and regulating. Planning activities such as goal setting and task analysis help to activate, or prime, relevant aspects of prior knowledge that make organizing and comprehending the material easier. Monitoring activities include tracking of one's attention as one reads, and self-testing and questioning: these assist the learner in understanding the material and integrating it with prior knowledge. Regulating refers to the fine-tuning and continuous adjustment of one's cognitive activities. Regulating activities are assumed to improve performance by assisting learners in checking and correcting their behavior as they proceed on a task.

Collaborating with one's peers has been found to have positive effects on achievement. Dialogue with peers can help a learner clarify course material and reach insights one may not have attained on one's own.

Pintrich 1991

AGM: IGuideME group is more motivated to do better than others



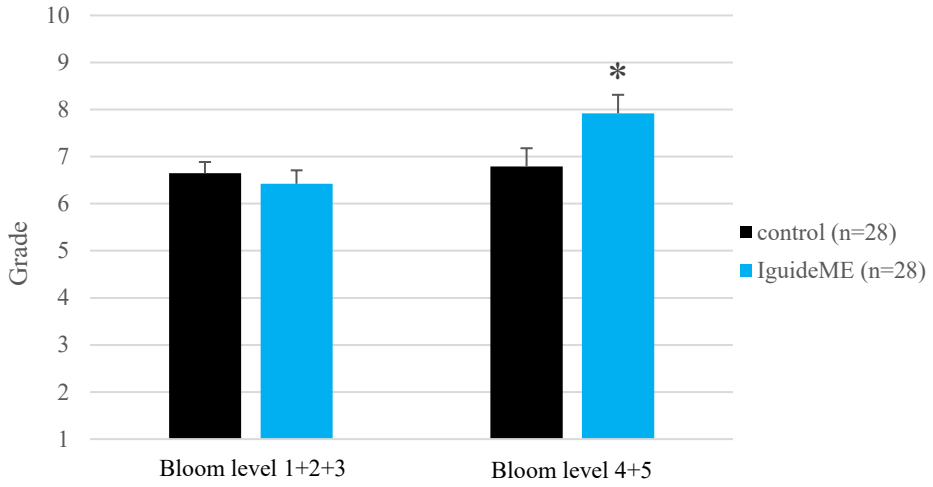
"do better than others"

yields a 3 × 2 achievement goal model (see Figure 1). This model is composed of the following goals: a *task-approach goal* focused on the attainment of task-based competence (e.g., "Do the task correctly"), a *task-avoidance goal* focused on the avoidance of task-based incompetence (e.g., "Avoid doing the task incorrectly"), a *self-approach goal* focused on the attainment of self-based competence (e.g., "Do better than before"), a *self-avoidance goal* focused on the avoidance of self-based incompetence (e.g., Avoid doing worse than before"), an *other-approach goal* focused on the attainment of other-based competence (e.g., "Do better than others"), and an *other-avoidance goal* focused on the avoidance of other-based incompetence (e.g., "Avoid doing worse than others").

Elliot 2011

IGuideME groups scores better on higher Bloom level exam questions

- No differences between groups for partial exams, final grade, % failure
- However…
- IGuideME group scores better on higher Bloom level exam questions



Students' evaluation

In anonymous student evaluations, the following answers were given by students to the question: "What is your opinion about IguideME?":

I liked the peer comparison (n=12)
Has helped me with studying (n=9)
Increased my motivation (n=8)
Provided insight into my study progress (n=7)
Was not that interesting for me (n=3)
Was demotivating for me (n=1)

Conclusion

Peer-comparison feedback using the learning analytics dashboard IGuideME can be used to **improve students' self-regulated learning, motivation and academic achievements** as well as **to detect potential dropouts and improve the course design**

Future plans

Scale up the project within UvA, set-up at VU and RUG, make it sustainable

Demo version, manual (+open brochures) and workshops for lecturers

Reflective journal for lecturers

Collaborations (ROC, HvA, UU, etc)

Project team Feedback GO

- Erwin van Vliet (Project leader and UvA team leader)
- Natasa Brouwer (UvA senior teaching consultant)
- Gerrit Oomens (UvA ICT)
- Miguel Pieters and Max Marshall (UvA Developers)
- Bert Bredeweg and Damien Fleur (UvA/HvA, Researchers)
- Alice Doek and Harrie van der Meer (UvA library)
- UvA legal department
- Koos Winnips (RUG team leader)
- Angelo Konstantinidis (RUG educational advisor)
- Sylvia Moes (VU team leader)
- Steering committee: Hans Breeuwer, Sylvia Witteveen (UvA), Hans Beldhuis, Jan Riezebos (RUG), Hilde van Wijngaarden (VU)

Seminar

Seminar: Learning Analytics in het onderwijs – hoe pak je dat aan?

Learning analytics is een complexe uitdaging binnen het onderwijs. Hoe pakken andere onderwijsinstellingen het aan? Heb jij behoefte om inspiratie op te doen en ervaring uit te wisselen over learning analytics? Kom dan op 20 juni naar het seminar learning analytics in het onderwijs van de SIG Learning Analytics.

Schrijf je in

SURF COMMUNITIES

Deel je expertise met de SURF-community

Learning Analytics

20 jun 2022

9.00 - 17.00 uur

SURF

Schrijf je in

Soort event
Seminar

Voorkennis nodig
Nee

https://www.surf.nl/agenda/seminar-learning-analytics-in-het-onderwijs-hoe-pak-je-dat-aan