

Is there value of learning analytics in MOOCs?

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Is there value of learning analytics in MOOCs?

Data Science & Social Research International Conference

Naples, 19 February 2016

Francis Brouns, Olga Firssova, Marco Kalz

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Learning analytics: hype?

- Big data, learning analytics: HYPE
- Correlations between data without meaning, cause or relation



Patterns and correlations

- Green, stem, leaf: tree, plant, cocktail, book?



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Ethical concerns

- Participant might not be aware that data is being used, nor how and to what purpose
- Ownership

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What is learning analytics?

Learning analytics 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

<https://solaresearch.org/about/>

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Need context

- Stakeholders
- Objectives: Prediction, Reflection
- Norms and procedures
- Protection of data

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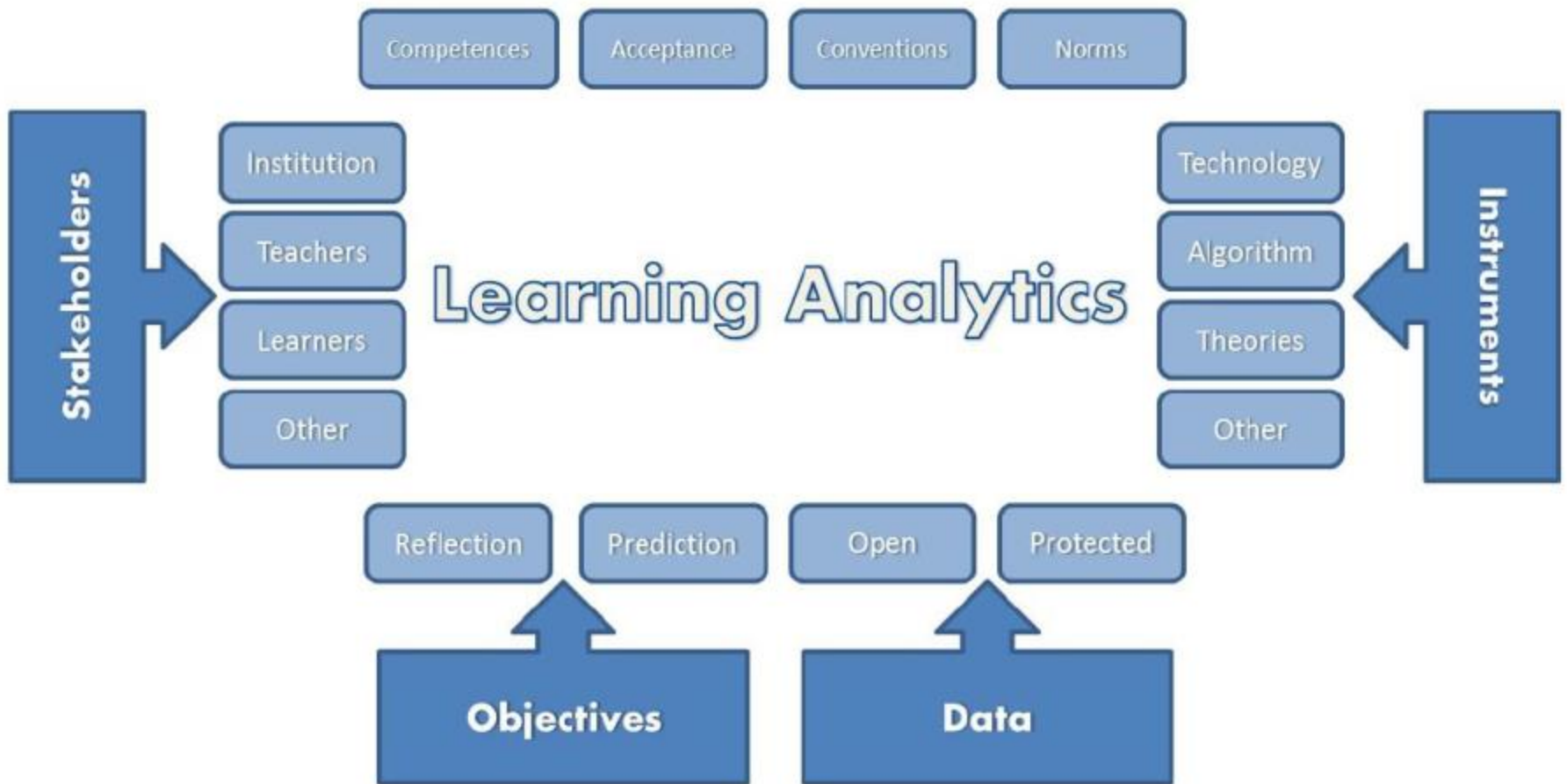


Figure 1: Critical dimensions of Learning Analytics

Greller, W, & Drachsler, H. (2012) Translating Learning into Numbers: Toward a Generic Framework for Learning Analytics. ET&S, 15(3), 42-57

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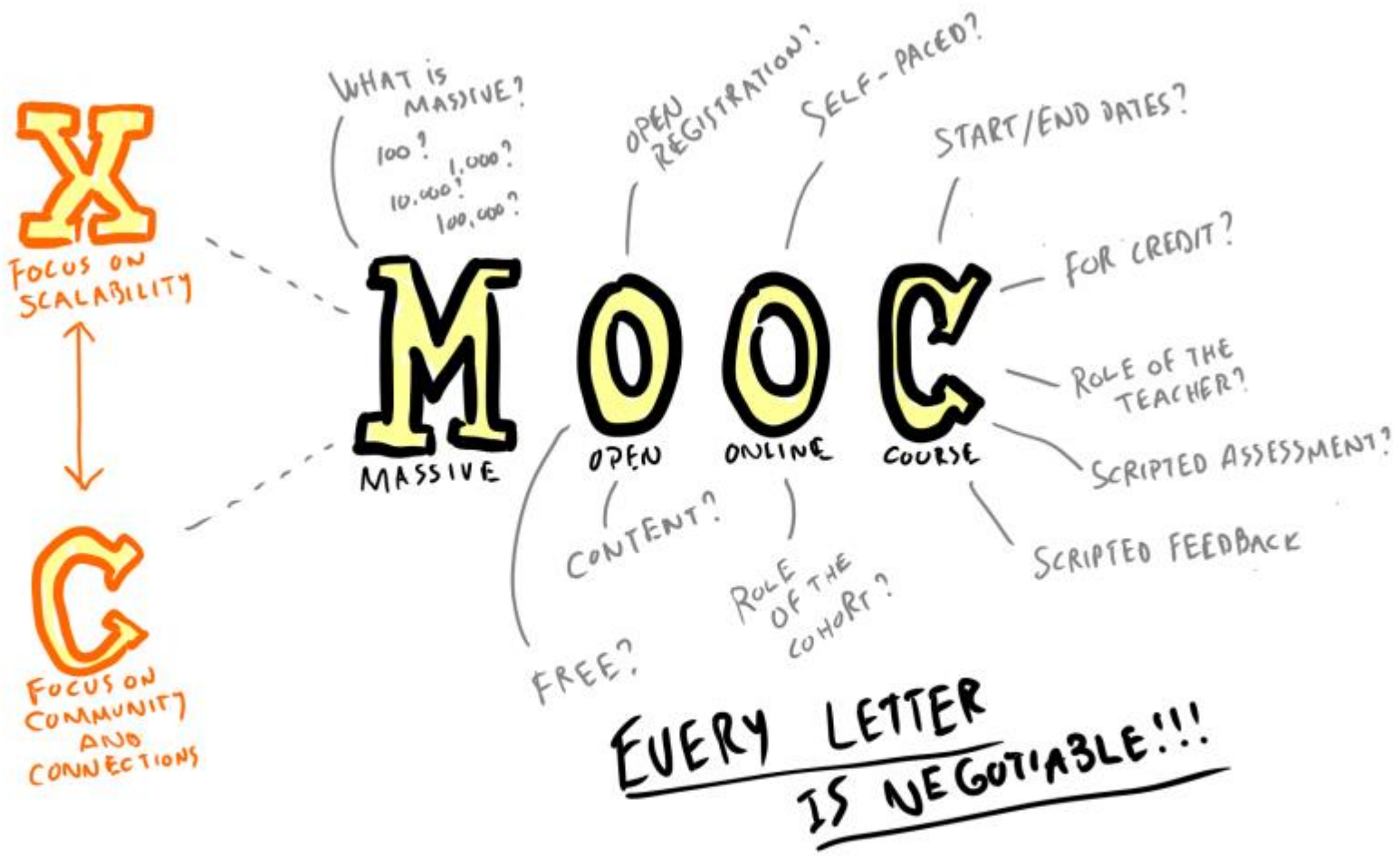
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BASED ON CONVERSATIONS AT #EDUON 2.5
 CC BY MATHIEU PLOURDE
 V. 1, FEB 5, 2013



ECO MOOC

- Online courses designed for large numbers of participants,
- That can be accessed by anyone
- Anywhere as long as they have an internet connection,
- Are open to everyone without entry qualifications,
- And offer a full/complete course experience online for free

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ECO sMOOC

- Social, networked learning
- Seamless, ubiquitous learning
- Inclusiveness

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Learner is central

- Takes an active role
- Responsible for their own learning
- Support learning community
- Knowledge through reflection and practice (creation, production) and dialogue in a social collaborative context
- Success by learners' goals and intentions



EMMA Learning analytics model

- Progress and performance
- Types of users
- Learning by engaging with product and/or with others

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MOOC success

- Drop-out? → NO
- Individual learning goals
- Interaction, conversations, community

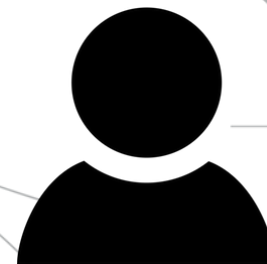
Exploring
learners



Auditing
learners



Completing
learners



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Learning analytics purpose

Reflection



Prediction



Define

- *Progress*: movement towards the achievement of a goal
- *Performance*: the degree of understanding and mastery of course material
- *Mastery*: degree of improvements



Define

- *Participation*: process during which participants are consulted about or have the opportunity to become actively involved in a course or activity of the course
- *At risk of drop-out* are those participants with a remarkable low participation, progress and performance with relation to those who have got the same goals



Academic goals and metrics

- Define and describe academic and learner goals
- Indicate learning design components
- Define metrics



Example

- Performance: variety of indicators measuring ability
 - e.g. compulsory activities and assignments passed successfully
- Metrics
 - Number of assignments passed
 - Grade achieved in each assignment



Algorithms

- Personal grade in module $P_i = w_i G_i$
- The final grade will be calculated as $P = \sum_j P_j$



Indicators

- Performance
- Mastery
- Progress
- Engagement
- Effort
- Satisfaction
- Social affiliation
- Social recognition
- Social responsibility

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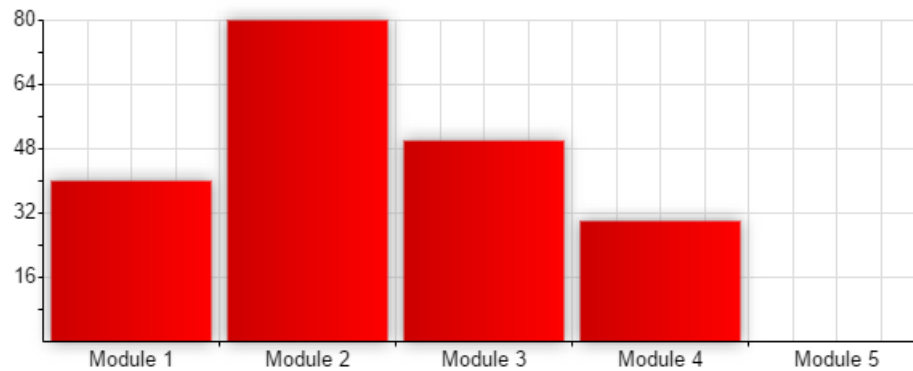
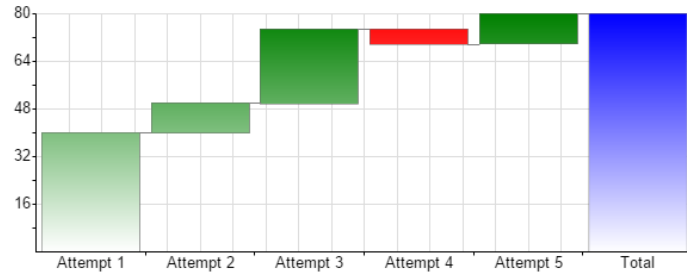
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Learner dashboard



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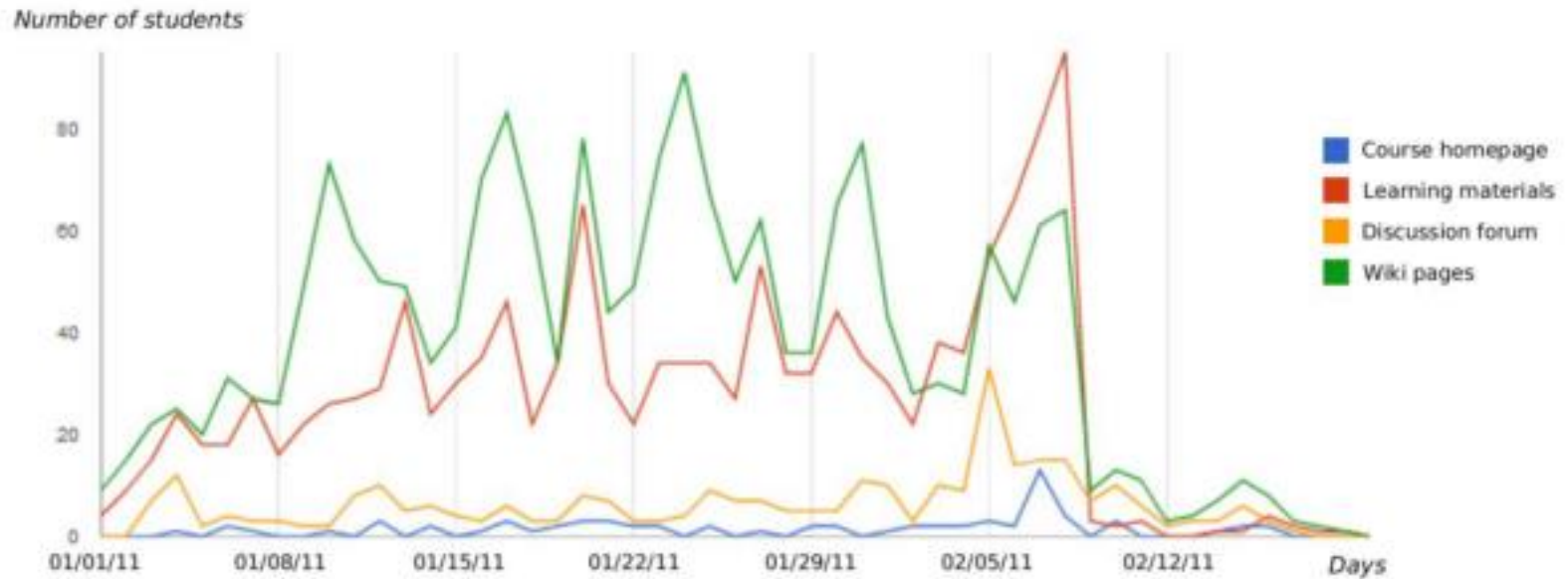
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Teacher dashboard



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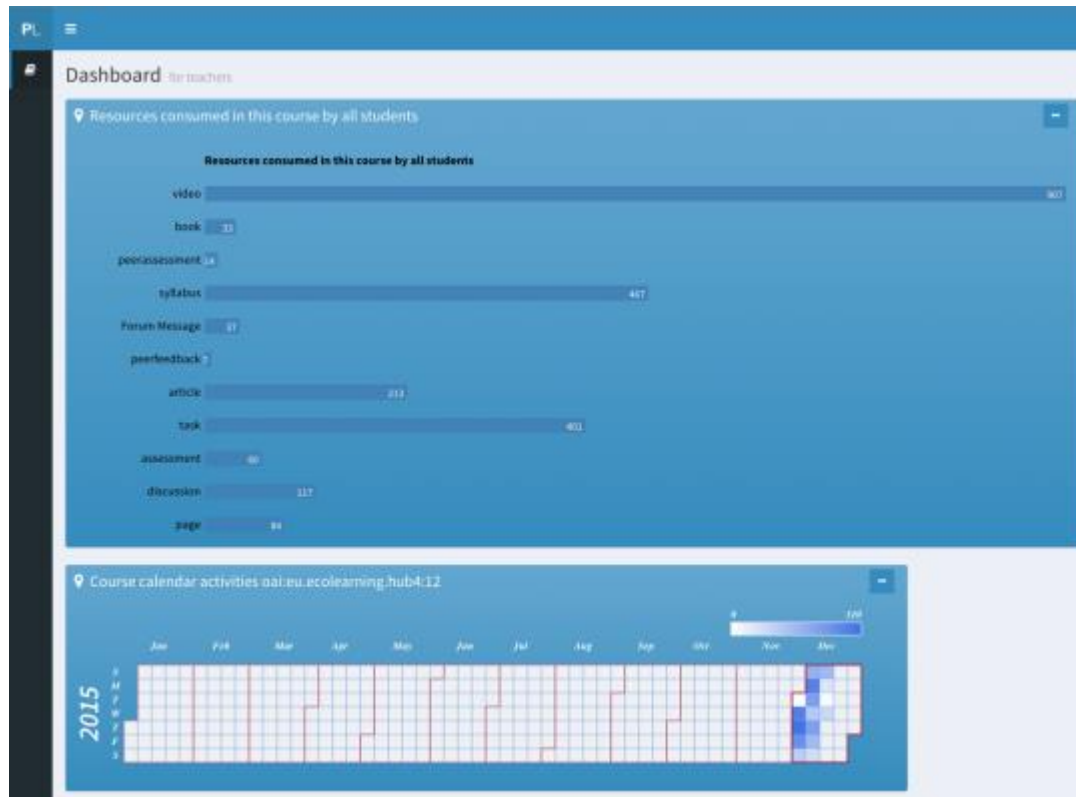
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Teacher's view

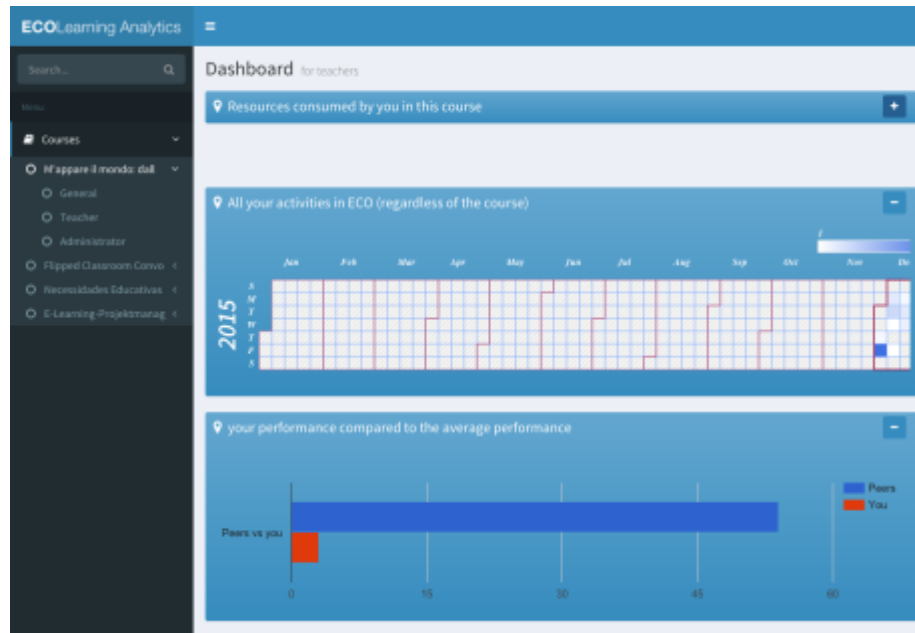


Resources
viewed

No of
learners
accessed



Learner's view

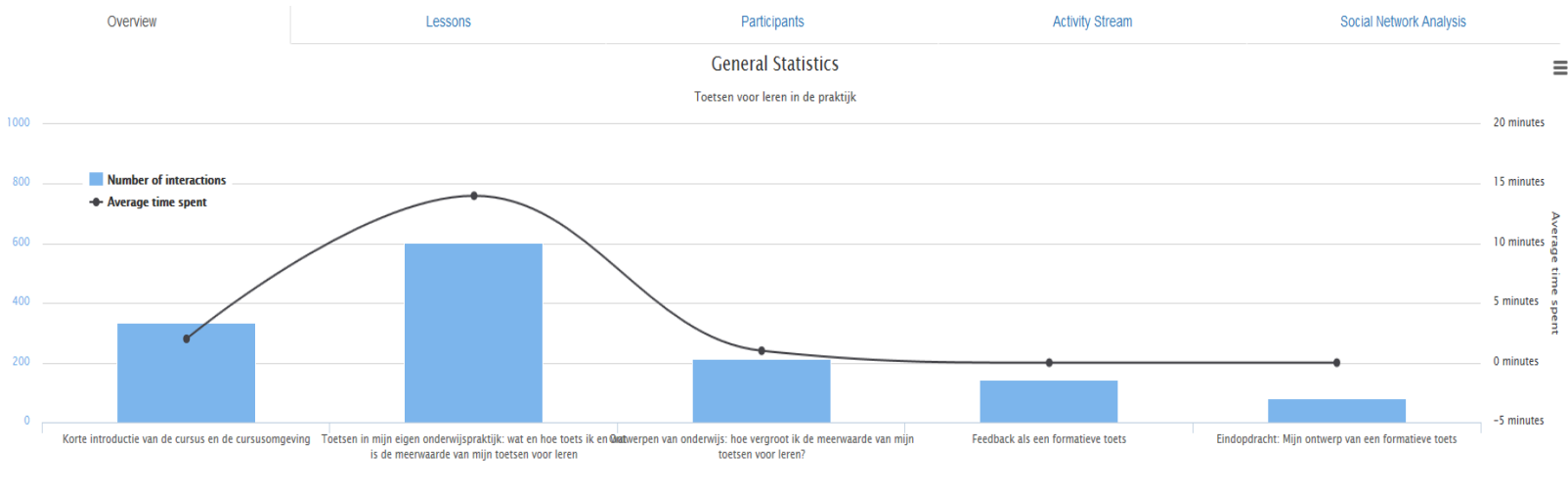


Activity per day

Performance compared to others

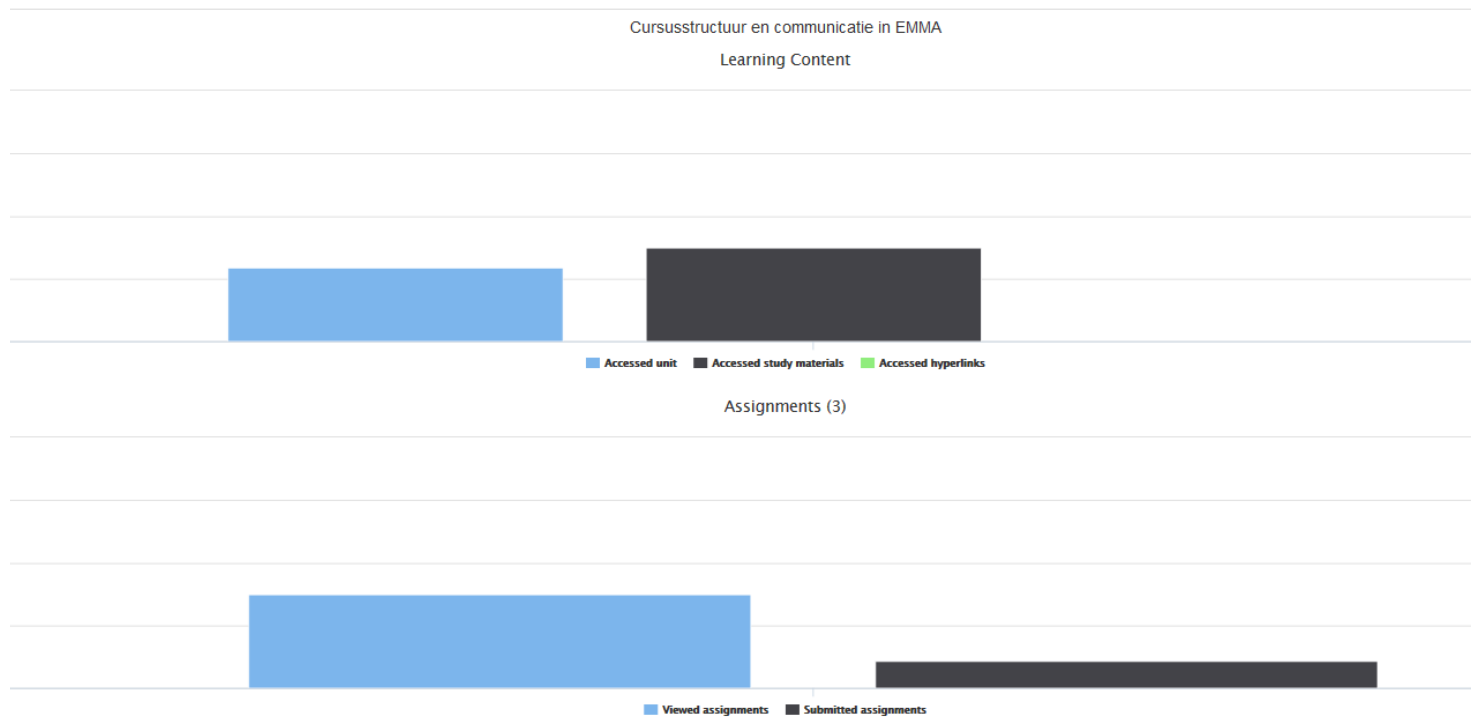


Number and duration of interactions

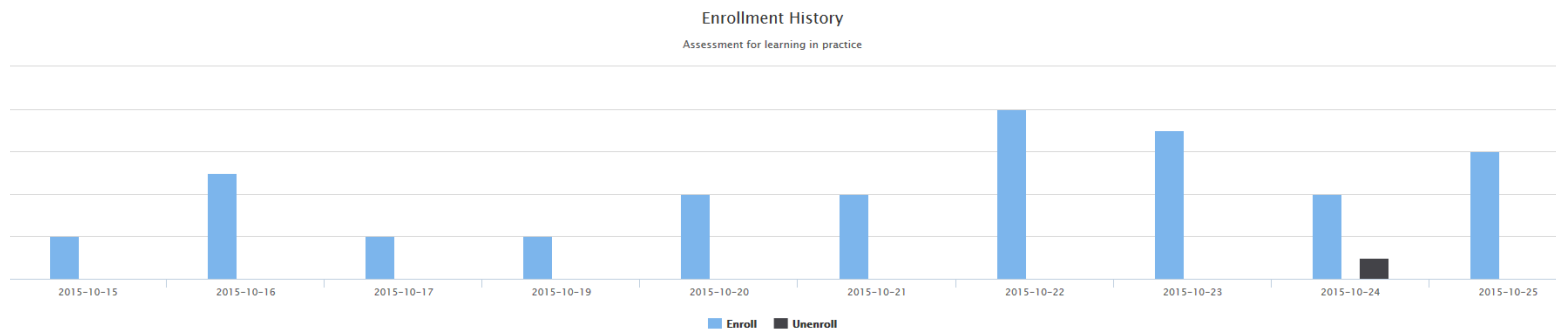


Accessing learning content and assignments

Korte introductie van de cursus en de cursusomgeving



Enrollment history



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Conclusion

- Value when carefully designed and used
- Define model first: what do you want to know and why
- Ensure privacy
- Ethical concerns
- Legal aspects

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Further information

- Francis Brouns, Open Universiteit, Welten Institute, <http://welteninstitute.org>
- Welten Institute digital repository: <http://dspace.ou.nl>
- ECO project: <http://ecolearning.eu>
- EMMA project: <http://platform.europeanmoocs.eu>



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