

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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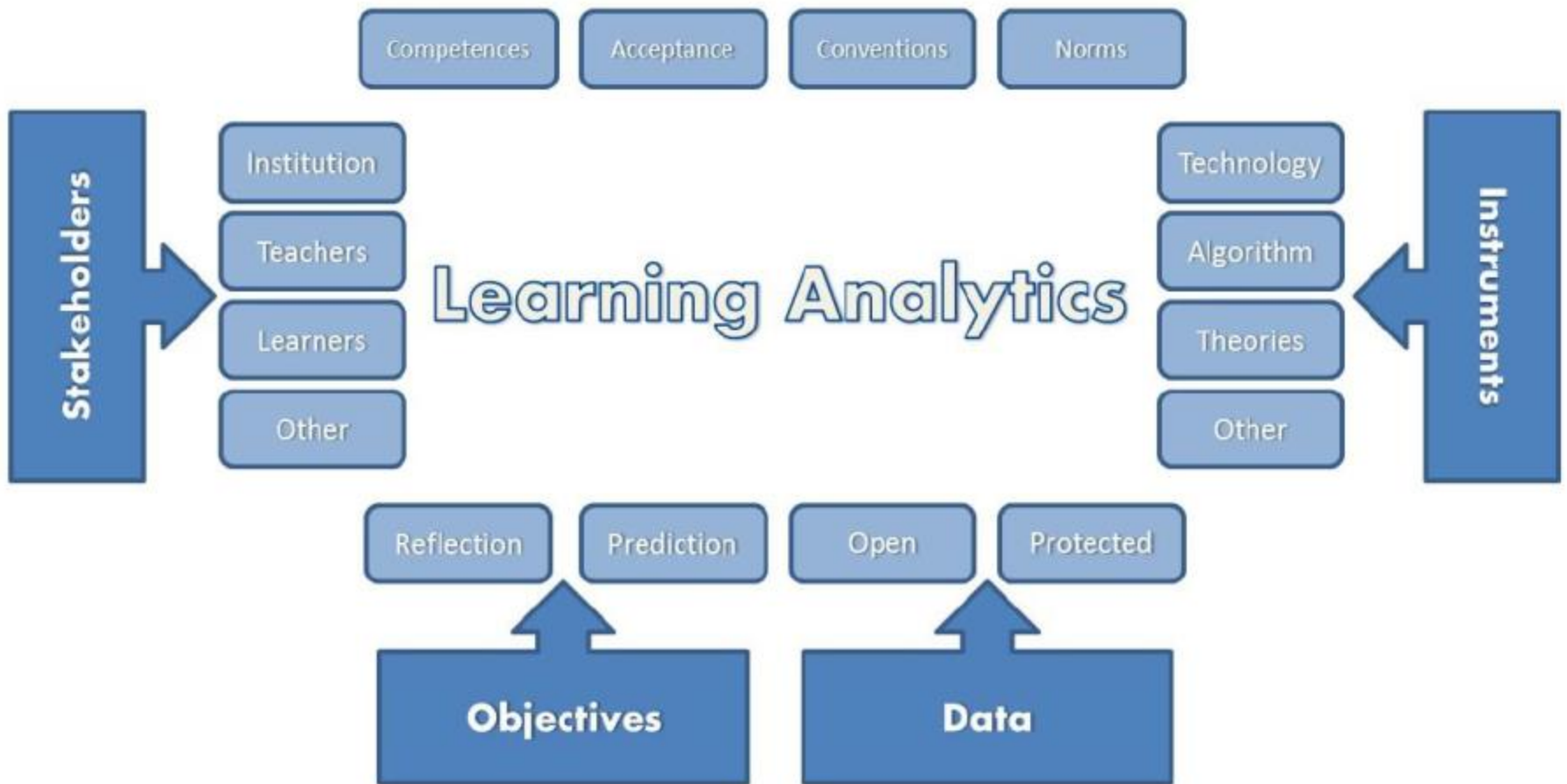


Figure 1: Critical dimensions of Learning Analytics

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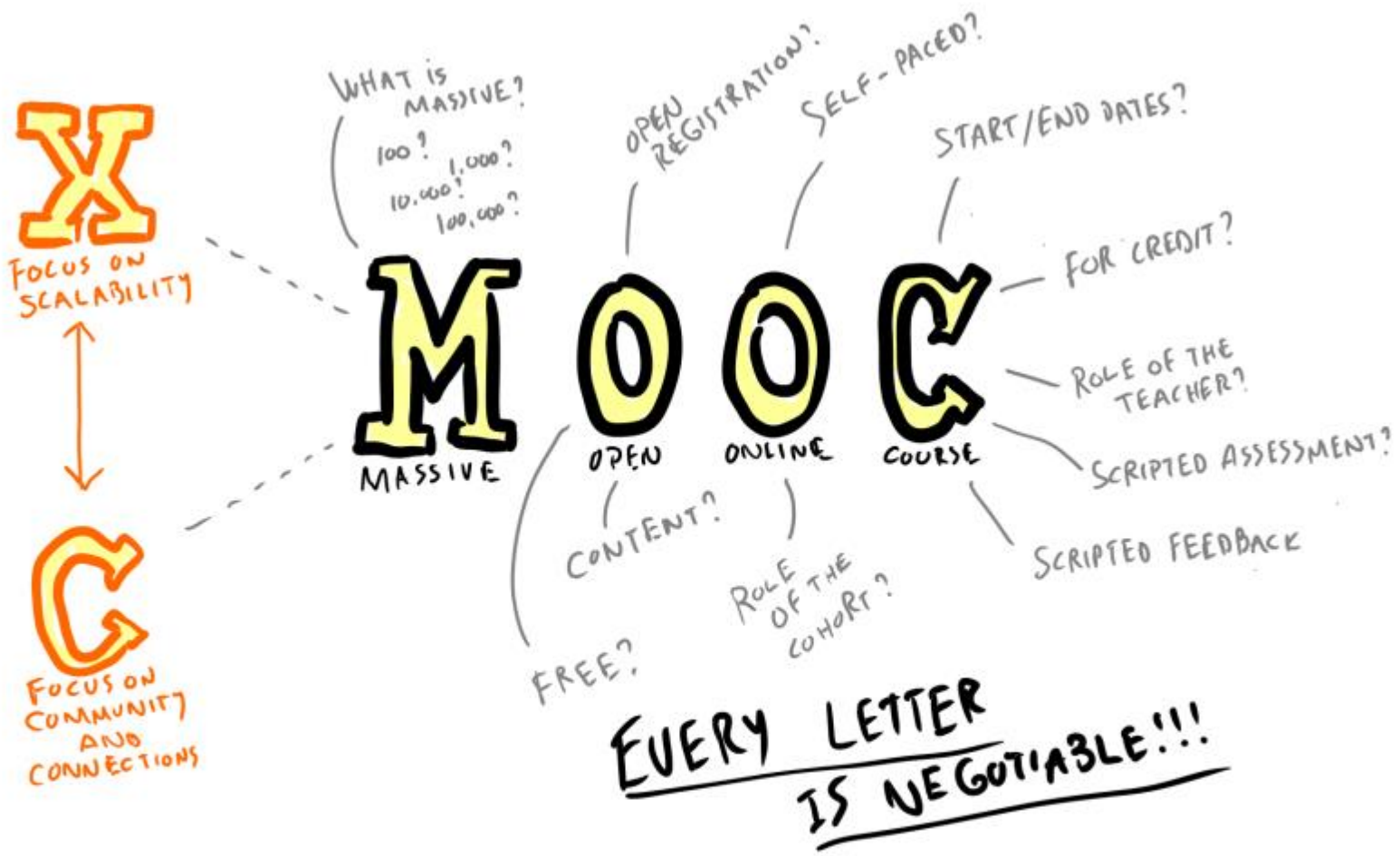
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BASED ON CONVERSATIONS AT #EDUON 2.5
 CC BY MATHIEU PLOURDE
 V. 1, FEB 5, 2013



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

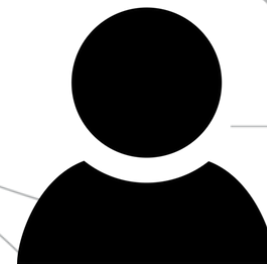
Exploring
learners



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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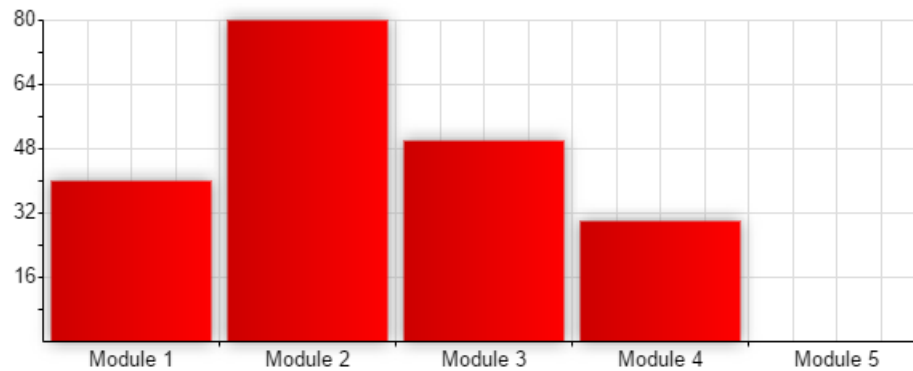
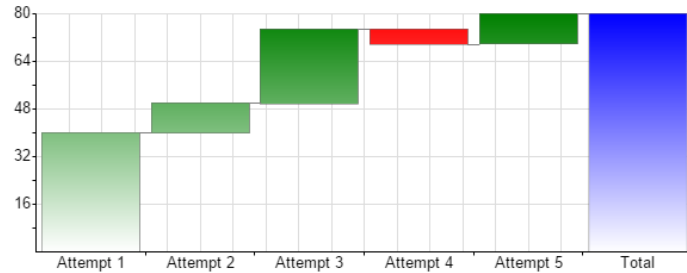
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Learner dashboard



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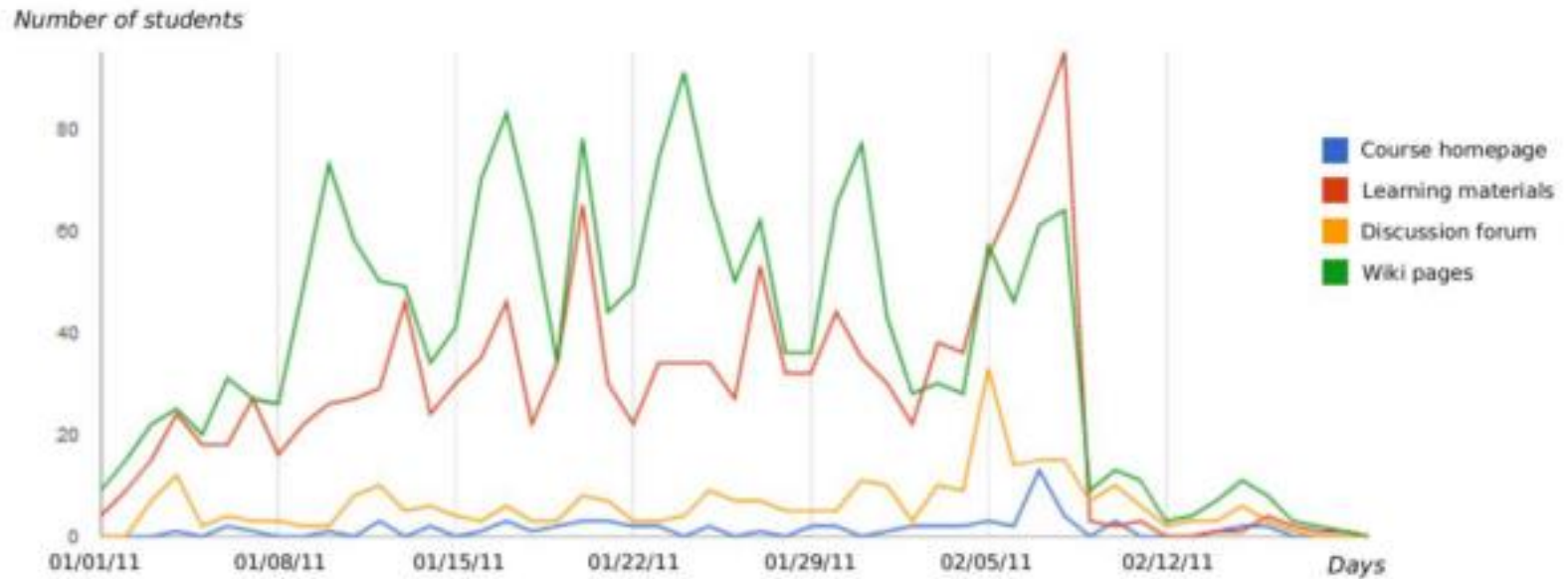
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Teacher dashboard



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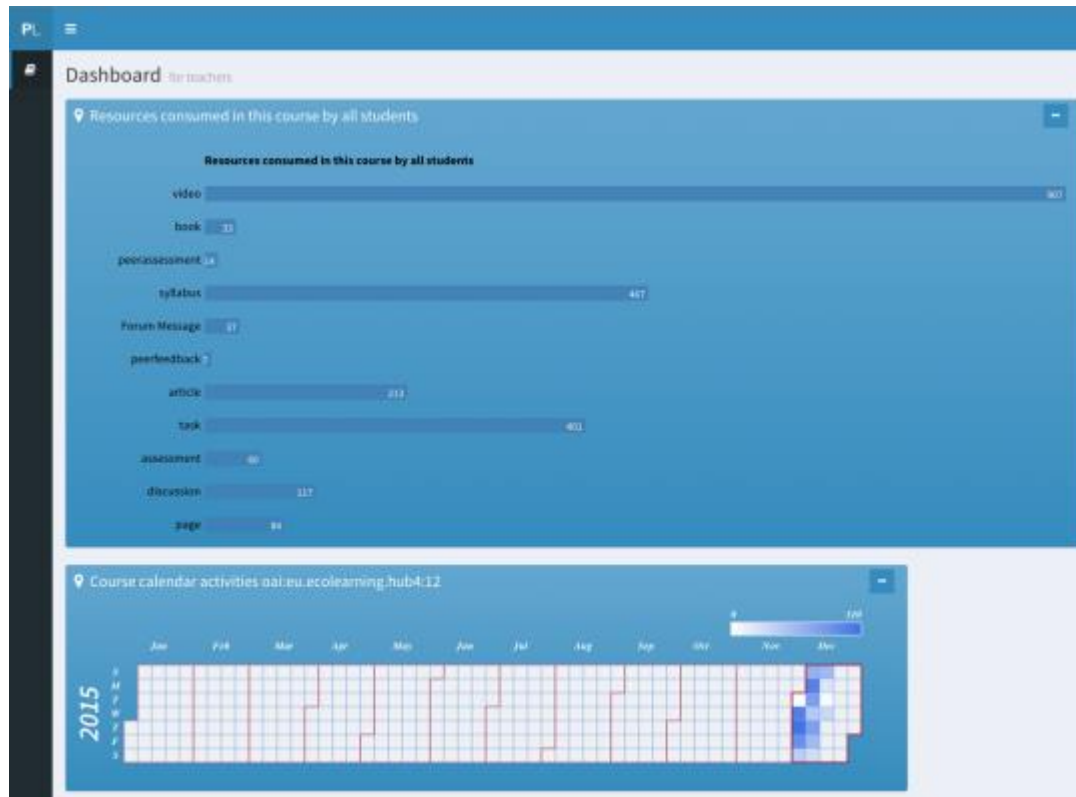
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Teacher's view

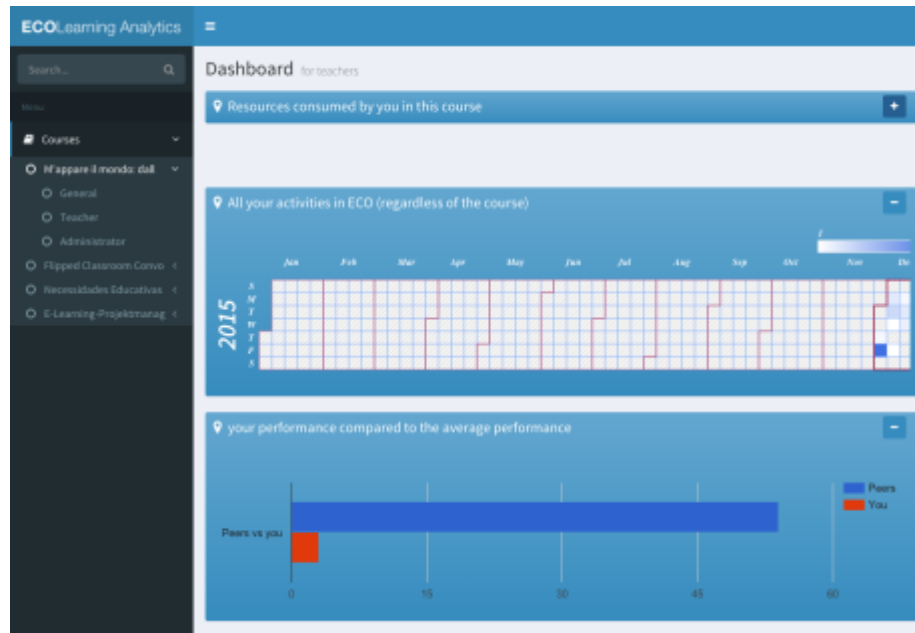


Resources
viewed

No of
learners
accessed



Learner's view



Activity per day

Performance compared to others

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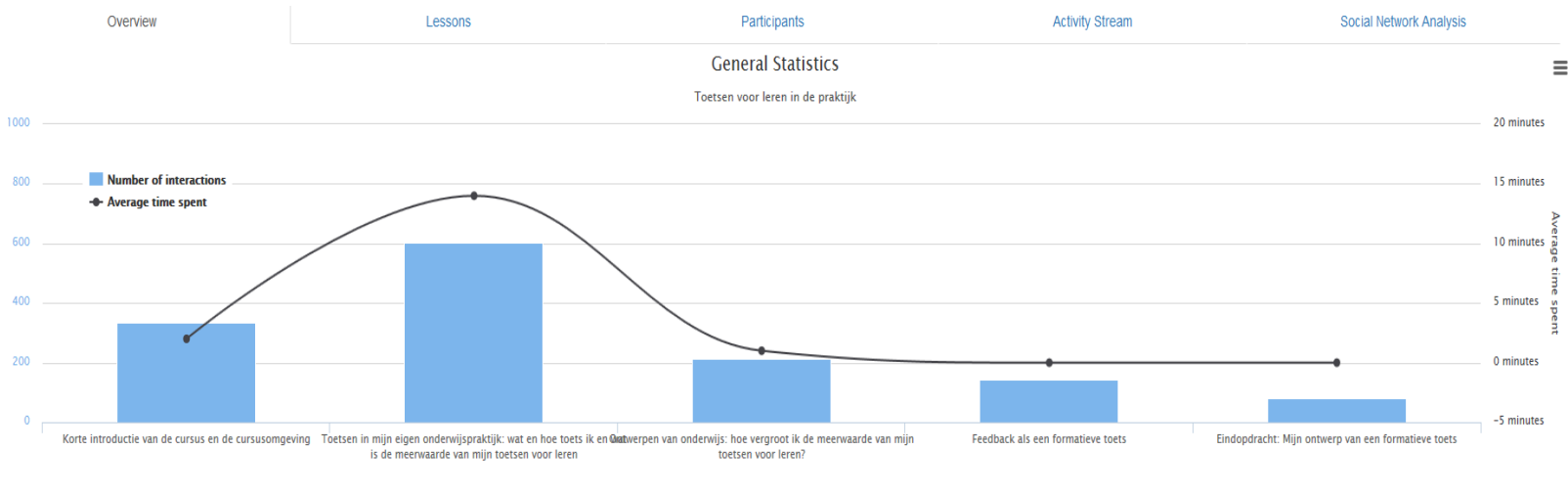
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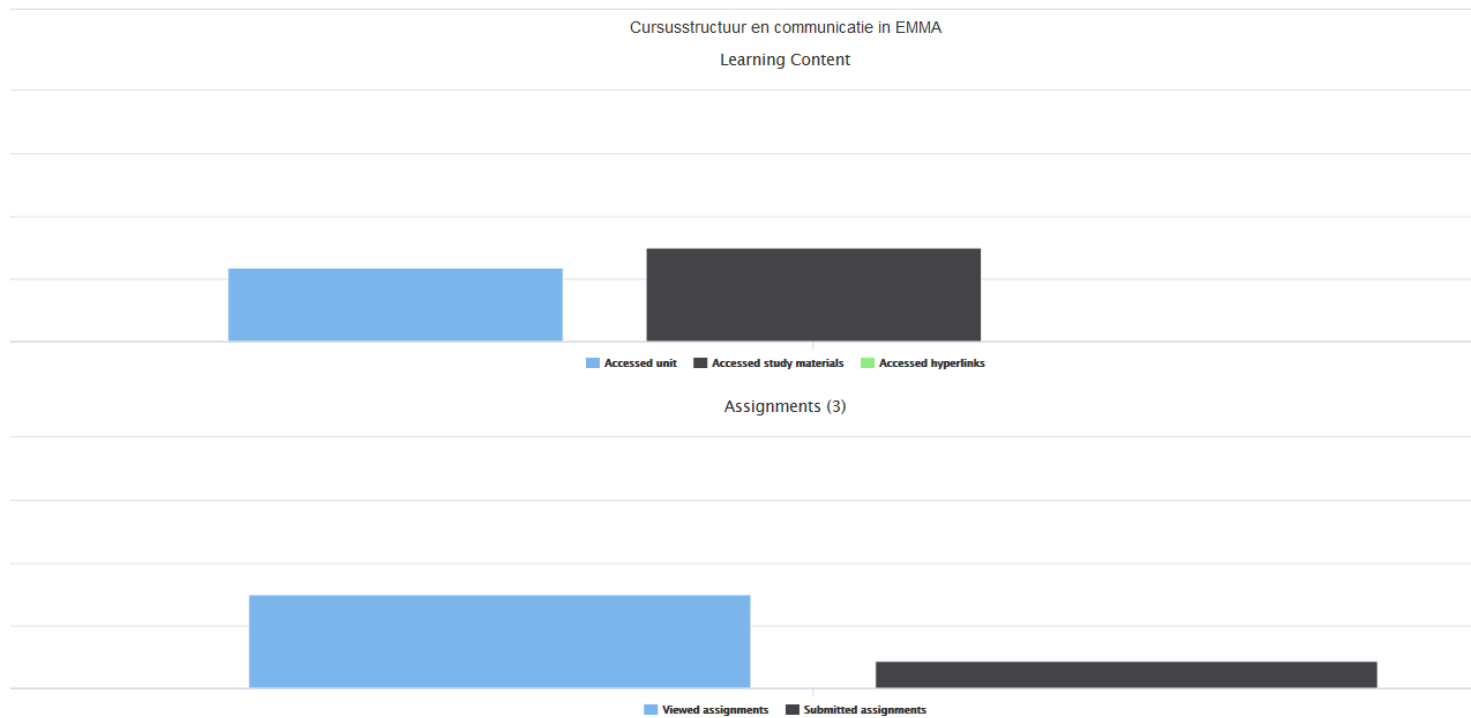


Number and duration of interactions

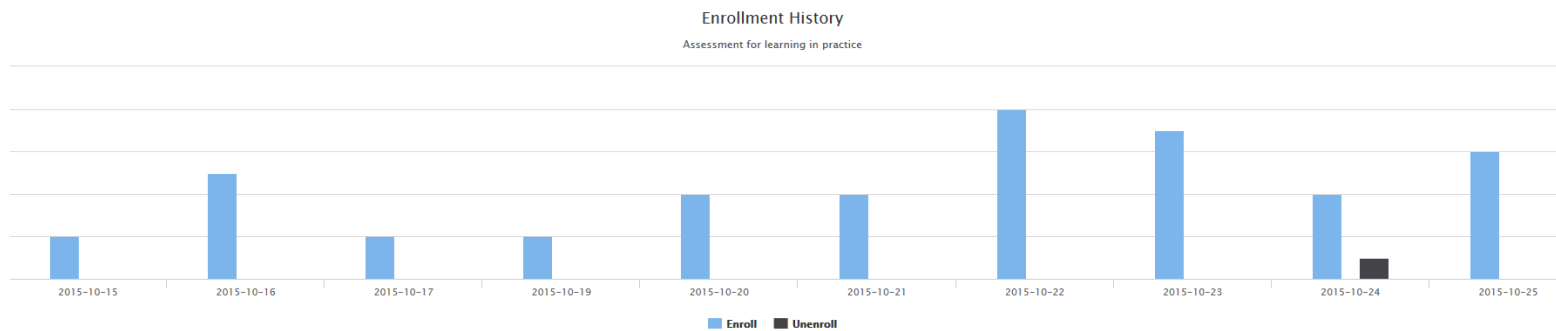


Accessing learning content and assignments

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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