

# Can Learning Analytics contribute to course redesign?

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## Abstract

Lecturers have various methods at their disposal to design online course materials, but they often have only limited possibilities to sufficiently analyze the actual usage of their materials in order to improve them.

Can Learning Analytics support a lecturer in such analysis, so that (s)he is able to effectively redesign the course where necessary on the basis of collected and processed data? A small use case study was set up to explore this question. The results presented indicate that there are certainly possibilities in this direction. The visualisations are most effective in the hands of a lecturer who is able to read beyond the data.

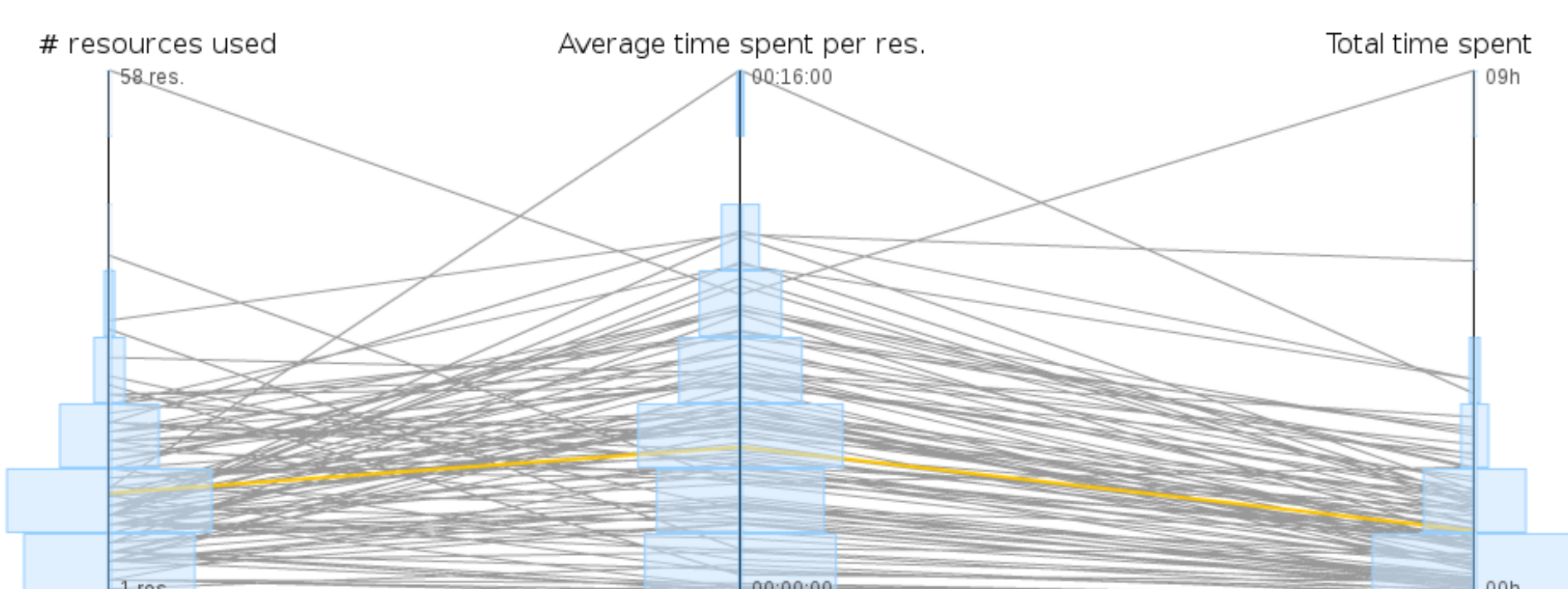
## Use case

- ▶ 150 first year biomedical science students
- ▶ Mathematical component within in a course
- ▶ One lecture on Maths and self-study using:
  - ▷ Pencasts
  - ▷ Web-documents
  - ▷ Interactive applets
  - ▷ Screencasts
  - ▷ Tests with automatic feedback

## Lecturer's information needs

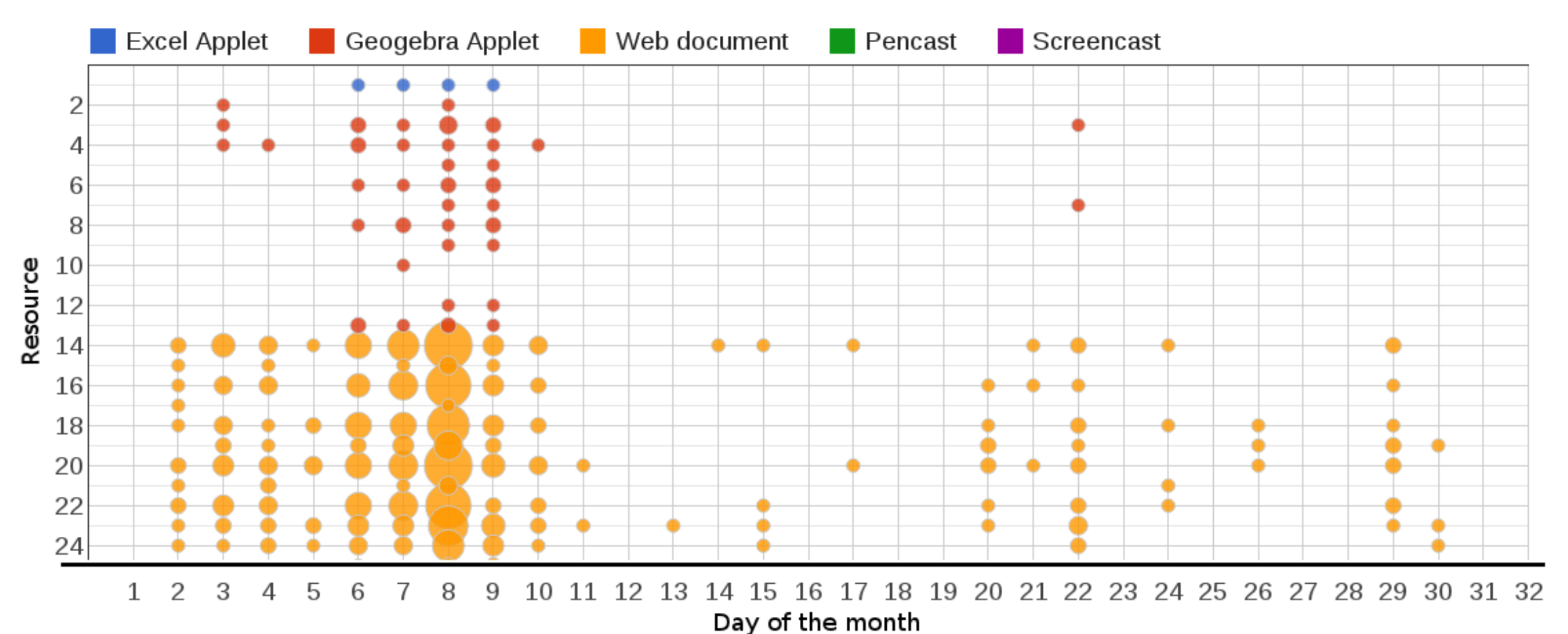
- ▶ Which learning objects are actually used by individual students?
- ▶ At what moments and in which sequence do students use learning resources?
- ▶ Does the use of learning objects depend on the entry competency level of the student?

## Visual aid 1: SAM



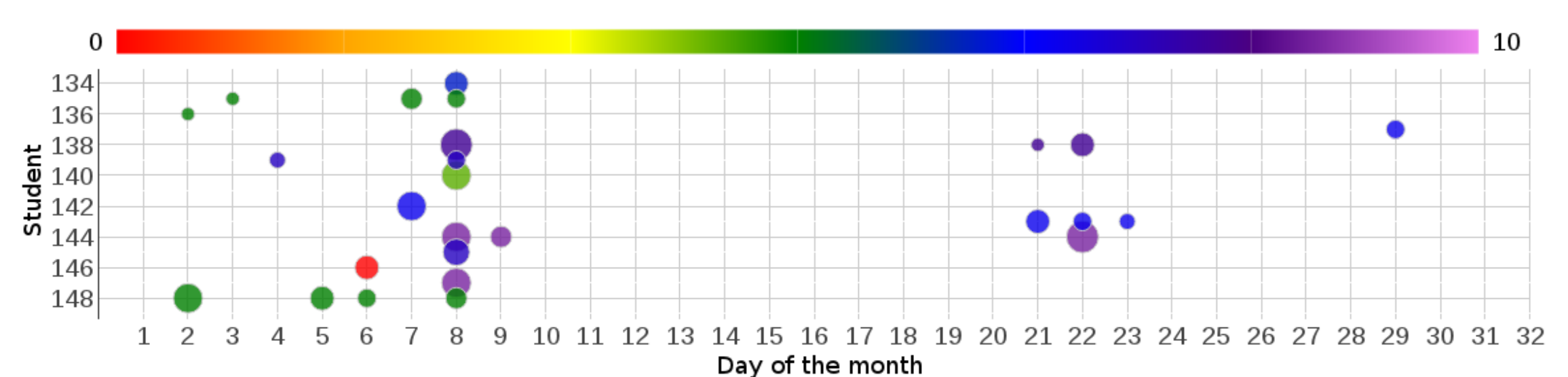
- ▶ Assessment of average time investment
- ▶ Identifying high/low activity students
- ▶ Examining hours spent over time

## Visual aid 2: Resource-time graph



- ▶ Specific type of materials were not picked up.
- ▶ There was a much higher activity on specific days.
- ▶ The usage of materials displayed orderings and repetitions.

## Visual aid 3: Graded-user-time graph



- ▶ Coloring with entry test grades shows:
  - ▷ Purple students continued studying after the lectures.
  - ▷ Green students started earlier than their peers.
  - ▷ Red students seemed to have given up rather quickly.

This could help the lecturer with course re-design. Perhaps by creating extra support for red students.

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