

# Small Data

A humble inquiry into the online learning behavior of  
students through LMS logs

Presented at the Saltise 2021 Conference  
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[Link to video](#)

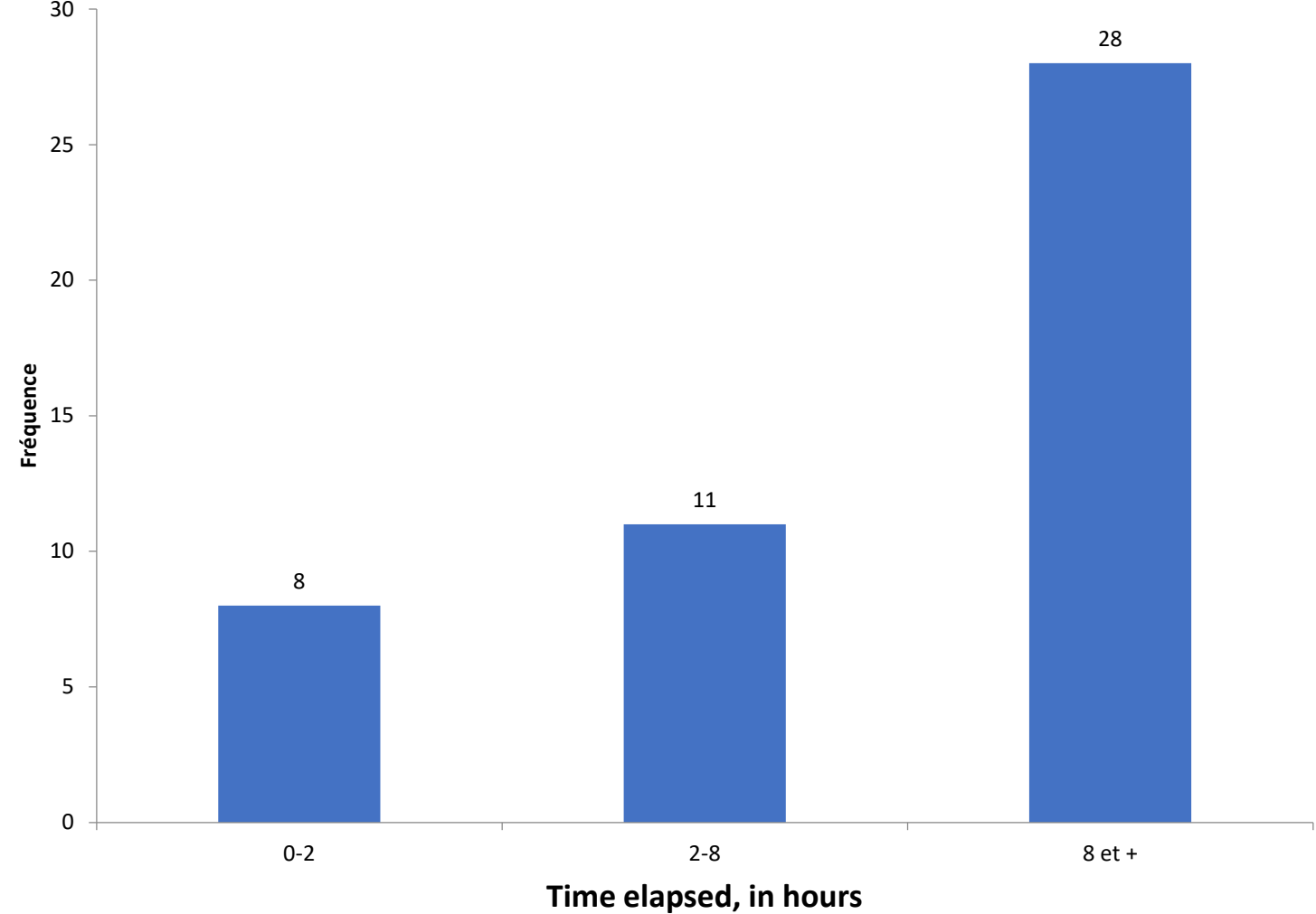
# The problem of student engagement in online learning

- How to elicit student engagement is a constant challenge in online learning.
  - Degree of attention and effort on the part of students in the learning process
- How to measure engagement in online learning
  - LMS logs can provide some useful information.

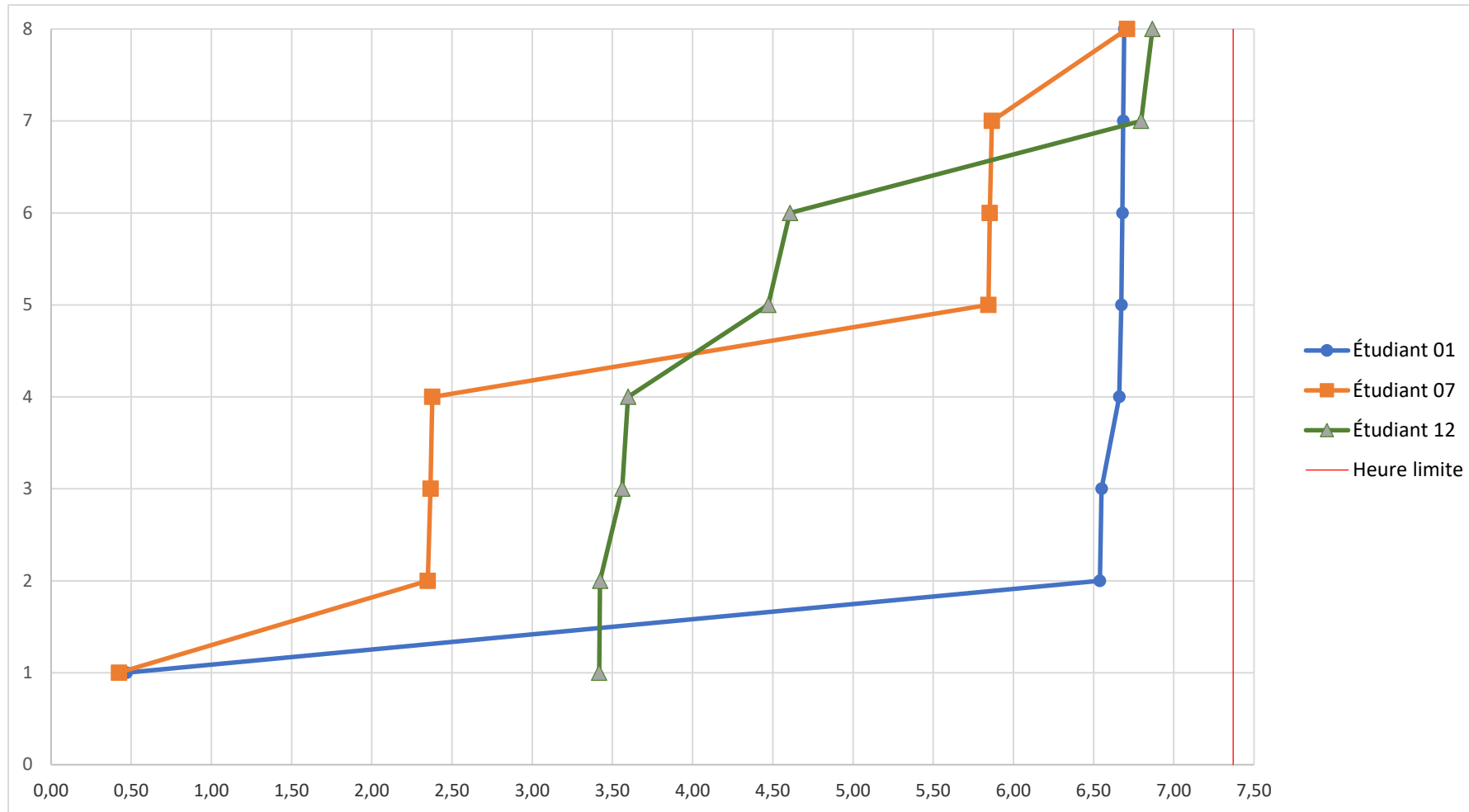
# Context

- Online (asynchronous) segment of a blended course.
- 8 short learning units to complete in a week (reading and viewing)
- A short formative test has to be completed at the end of each unit before moving on to the next.
- Estimated time to complete : 2 to 3 hours
- The course log on Moodle shows when each unit is started and how long the students took to complete the segment.

**Distribution of the time elapsed between the start and the end of the 8 online learning units (n=47)**

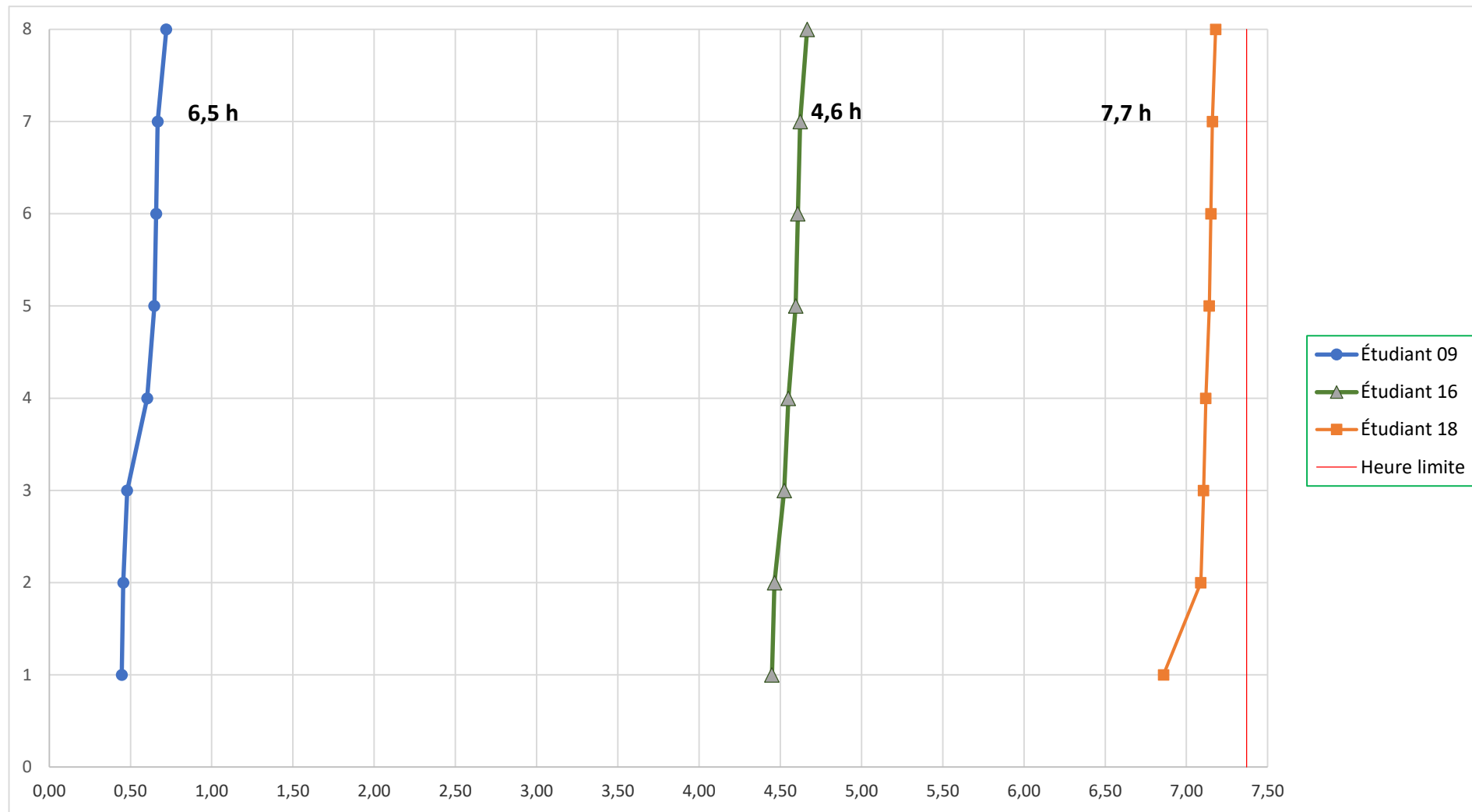


The tortoises (elapsed time more than 8 hours)



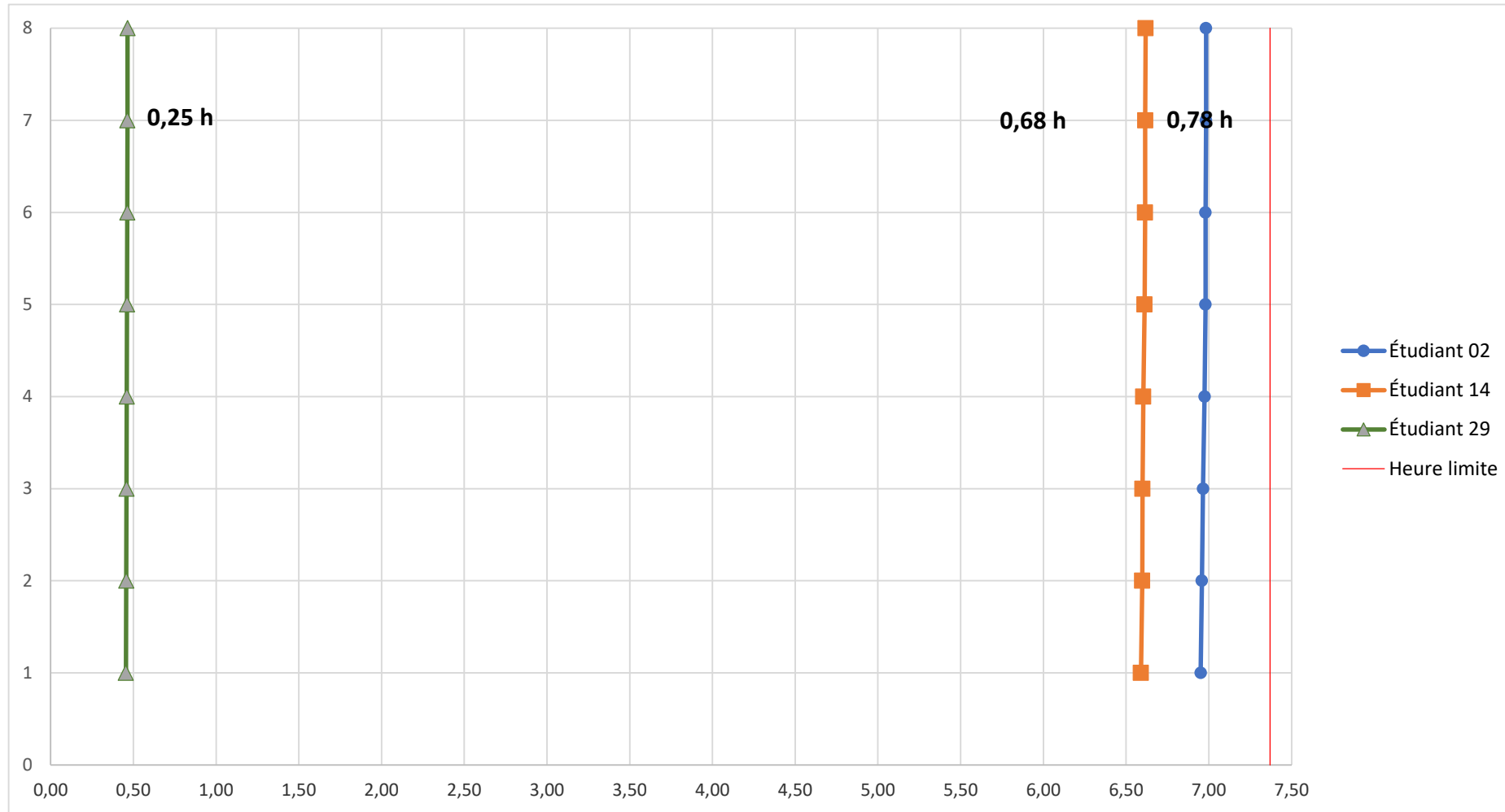
Moment of the week when each of the 8 learning unit is begun, in 12 hour segments  
(X,00 = midnight; X,50 = noon )

The steady ones (elapsed time between 2 and 8 hours)



Moment of the week when each of the 8 learning unit is begun, in 12 hour segments  
(X,00 = midnight; X,50 = noon )

The hares (elapsed time between 0 and 2 hours)



Moment of the week when each of the 8 learning unit is begun, in 12 hour segments  
(X,00 = midnight; X,50 = noon )

# Correlation with grades

|                                | Hares (8) | Steady ones (11) | Tortoises (28) |
|--------------------------------|-----------|------------------|----------------|
| Formative tests<br>(out of 10) | 5,67      | 9,14             | 8,87           |
| Final exam<br>(out of 100)     | 63,3      | 66,8             | 68,4           |



# Conclusions

- Interesting things about students online behaviour can be observed by analyzing the Moodle course log.
- This information could help improve online education offerings, especially to elicit a better engagement from some students (or check if such improvements actually work).
- Such an analysis require a lot of time, limiting its use on a larger scale. Tools to automate the work would be very useful.