

E-learning in COVID-19 pandemic at the UPC

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Atenea: the virtual platform at the UPC

At the COVID-19 term (Q2-2020) the teaching is completely online

- From 11 March to end June 2020
- Atenea is the LMS (Moodle)
- G Suite is deployed for all users in one week (Meet, Drive, ...)

Atenea: the virtual platform at the UPC



- Moodle virtual platform
- ~ 31000 users (29000 students)
- ~ 5000 active subjects
- ~ 1600 active subjects (78%) during Q2-2020 term
- ICE-UPC begin an initial analysis of Atenea indicators (July 2019)

How to measure the e-learning? Atenea indicators during COVID-19

Prat, J.; Llorens, A.; Salvador, F.; Alier, M.; Amo, D. A Methodology to Study the University's Online Teaching Activity from Virtual Platform Indicators: The Effect of the Covid-19 Pandemic at Universitat Politècnica de Catalunya. *Sustainability* **2021**, 13(9), 5177.
<https://doi.org/10.3390/su13095177>

Informe activitat docent Atenea: Efecte COVID-19. *Butlletí Epicentre*, 7 (05-**2021**). Institut de les Ciències de l'Educació. ICE-UPC
https://www.upc.edu/ice/ca/material-noticies/informe-activitat-docent-a-atenea_epicentre_maig.pdf



Levels to measure Moodle activity

Table 3. Different levels to measure Moodle activity. ¹ by mean value dividing by active users. ² in mean/median/maximum value considering all data from subjects.

Level	Moodle Activity of a	Per
0	user	–
1	subject	(user ¹)
2	degrees/ masters	(user ¹ / subject ²)
3	unit	(user ¹ / subject ²)
4	global university	(user ¹ / subject ²)

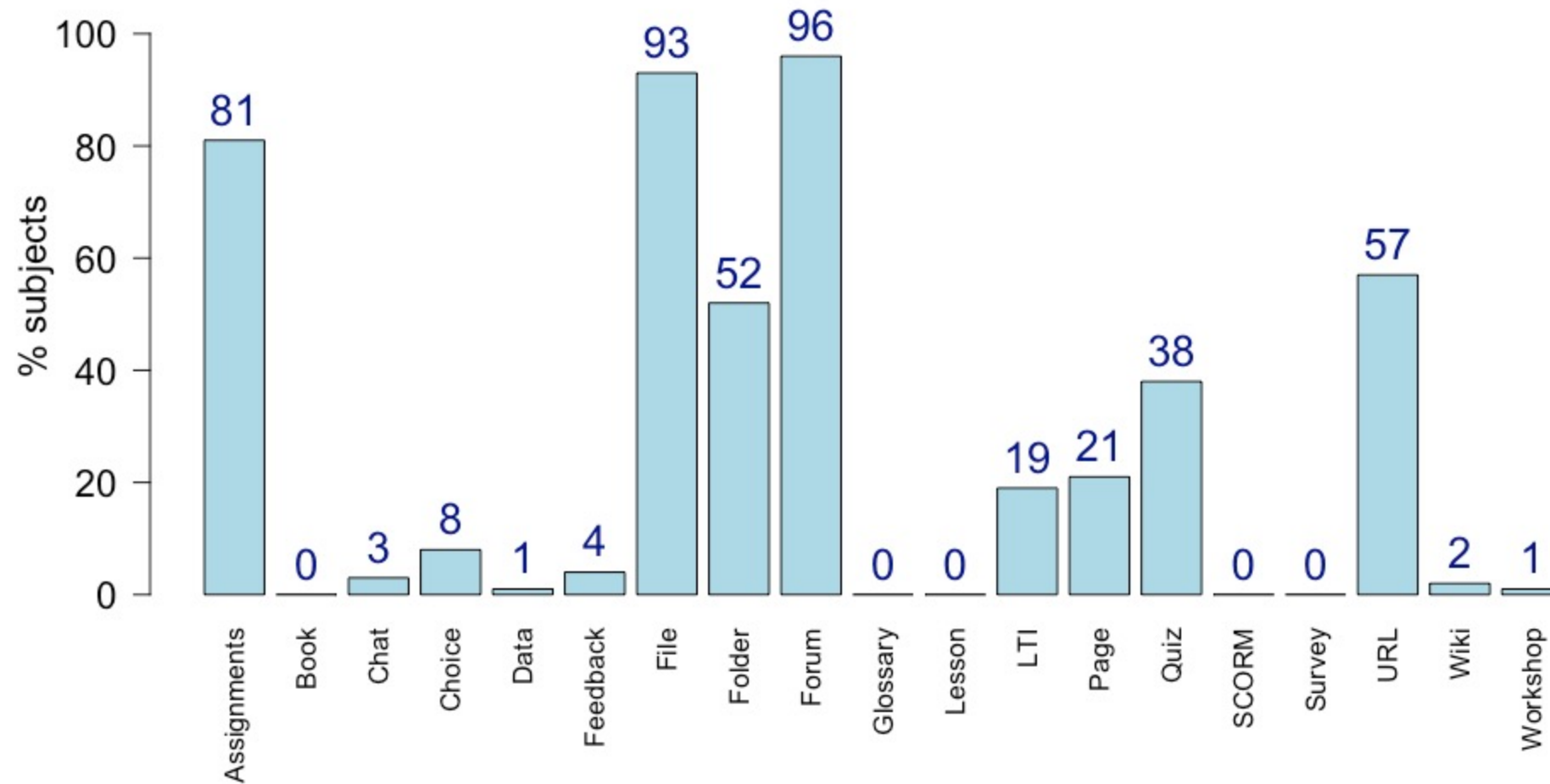
Key indicators to measure teaching activity over a period

Table 4. Key indicators to measure teaching activity over a period. ¹ by mean value dividing by users; ² by mean/median/maximum value considering all data from subjects.

Symbol	Key Indicators	of a	for Each	Per
K1	Concurrent users	subject		
K2	Active subjects		(resource/activity)	
K3	Activity	subject	(resource/activity)	(per user ¹)
K4	Activity	unit/total	(resource/activity)	(user ¹ / subject ²)
K5	Level of activity	subject	(unit)	
K6	Deliverables created by recturers	unit		
K7	Deliverables sent by students	unit		

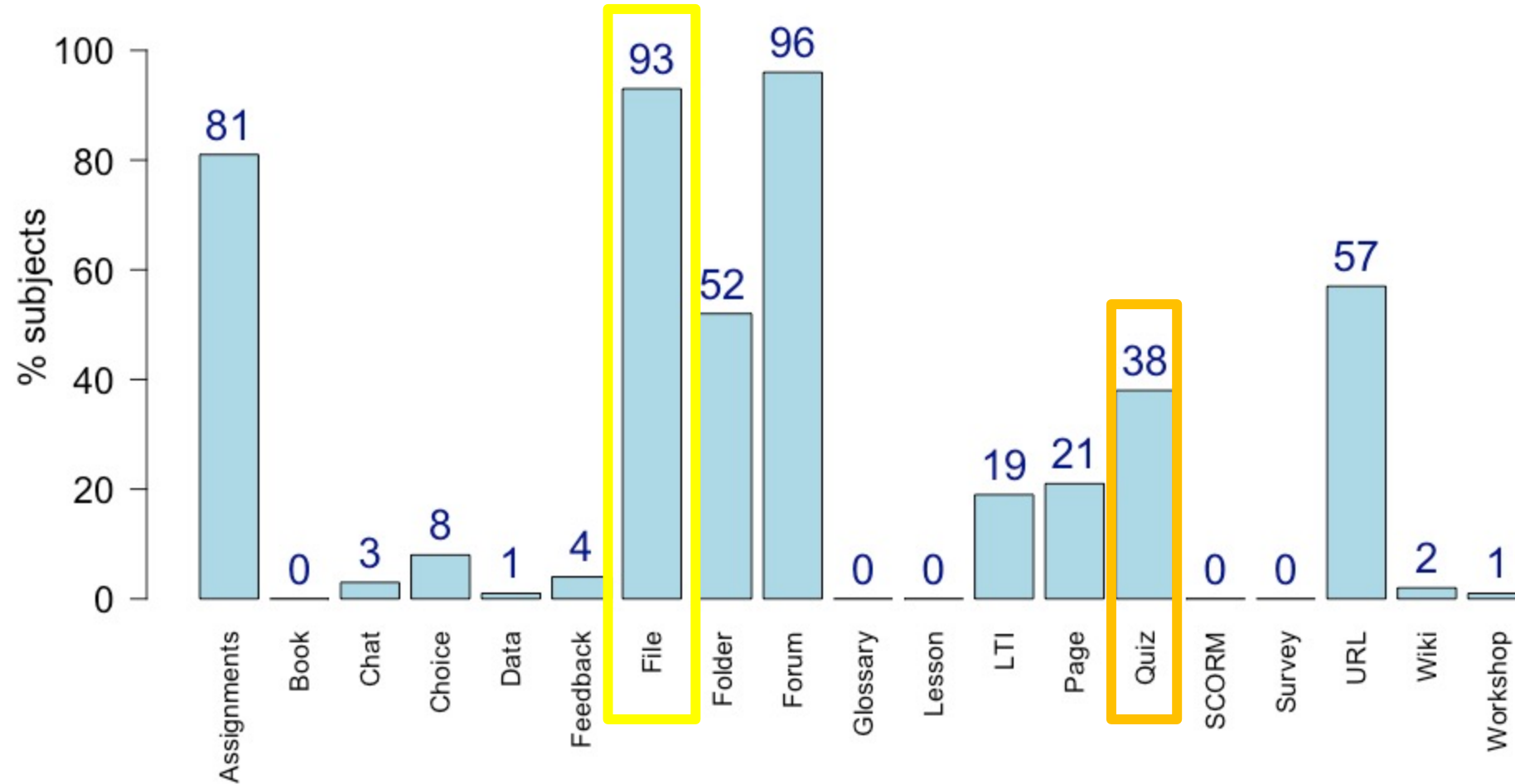
K2: Active subjects for each Moodle resource/activity

% active **subjects**



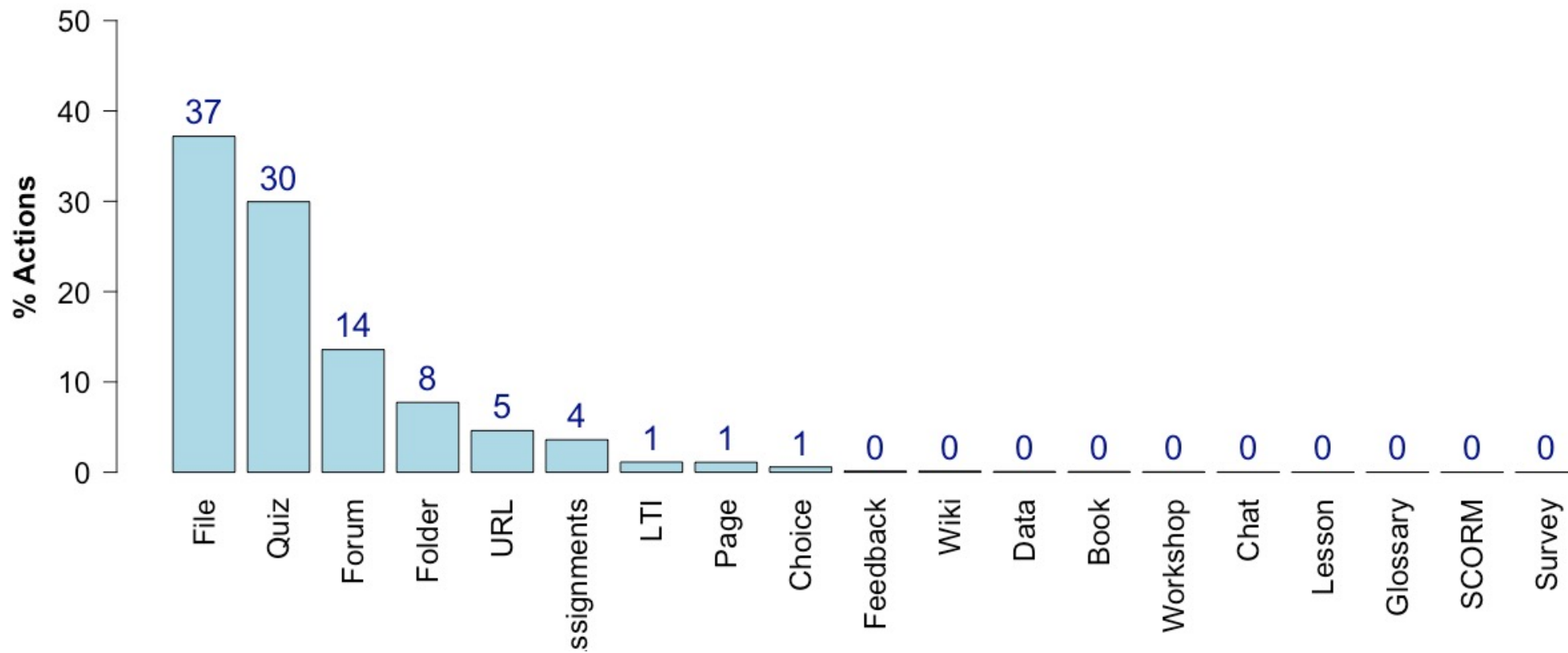
K2: Active subjects for each Moodle resource/activity

% active **subjects**



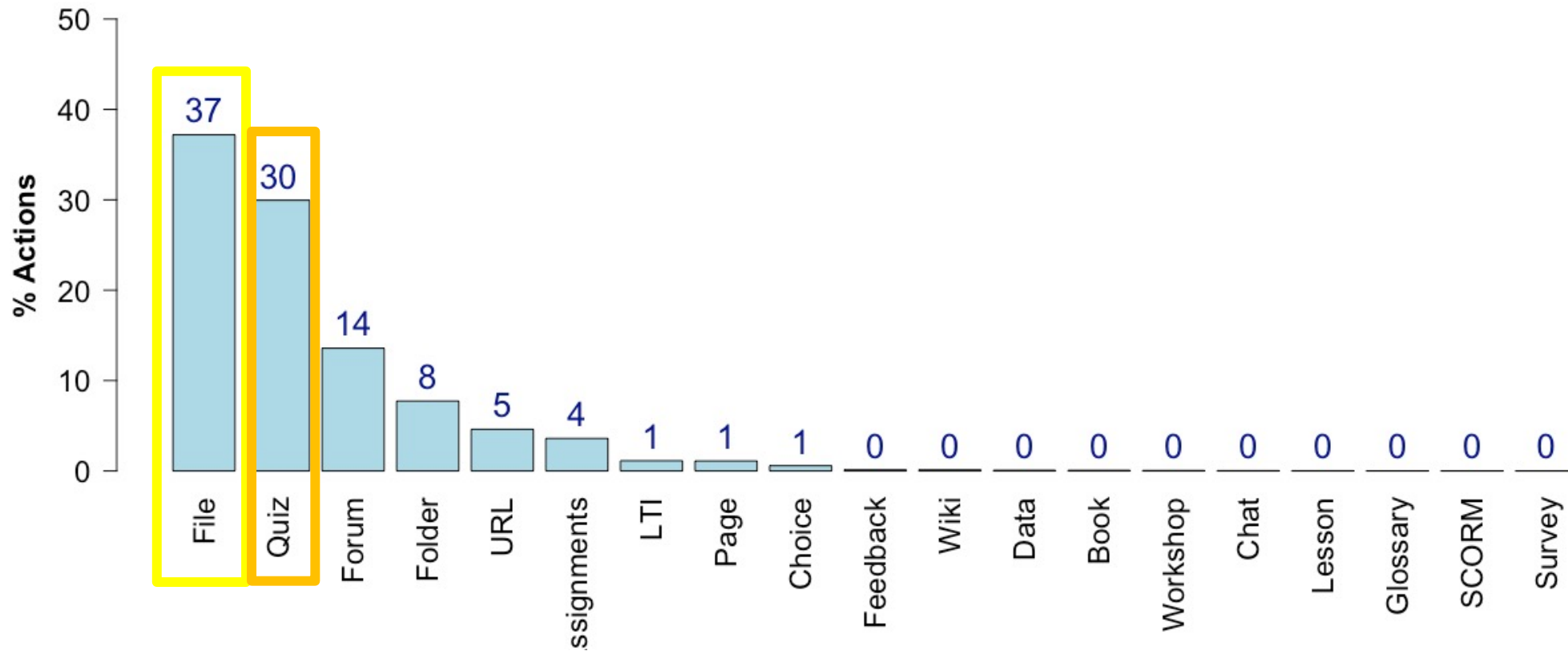
K4: Activity of total UPC per subject

% Actions per **subject**



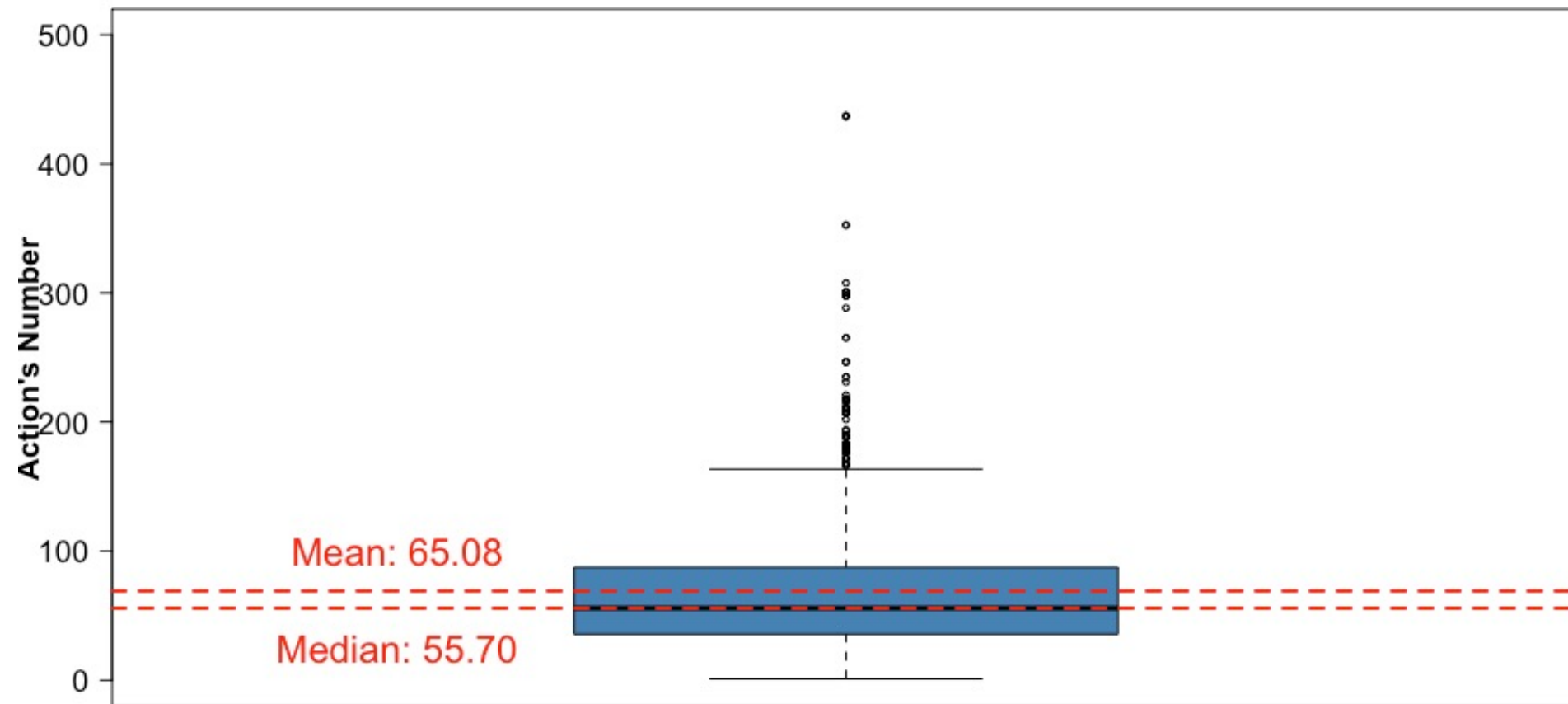
K4: Activity of total UPC per subject

% Actions per **subject**



K3: Activity of a subject per user

% Actions of a subject **per user**



K3: Activity of a subject for each activity/resource per user
% Actions of a subject **for each activity/resource per user**

Table 9. Comparison of number of actions (*assignment*, *file*, *quiz*, and *forum*) per user in mean/median of all subject between terms Q2-2019 and Q2-2020. (Mean/median K3 per user).

Term	<i>Assignment</i>	<i>Quiz</i>	<i>File</i>	<i>Forum</i>
Q2-2019	43 / 7	209 / 0	860 / 292	81 / 19
Q2-2020	101 / 40	843 / 0	1047 / 416	382 / 106

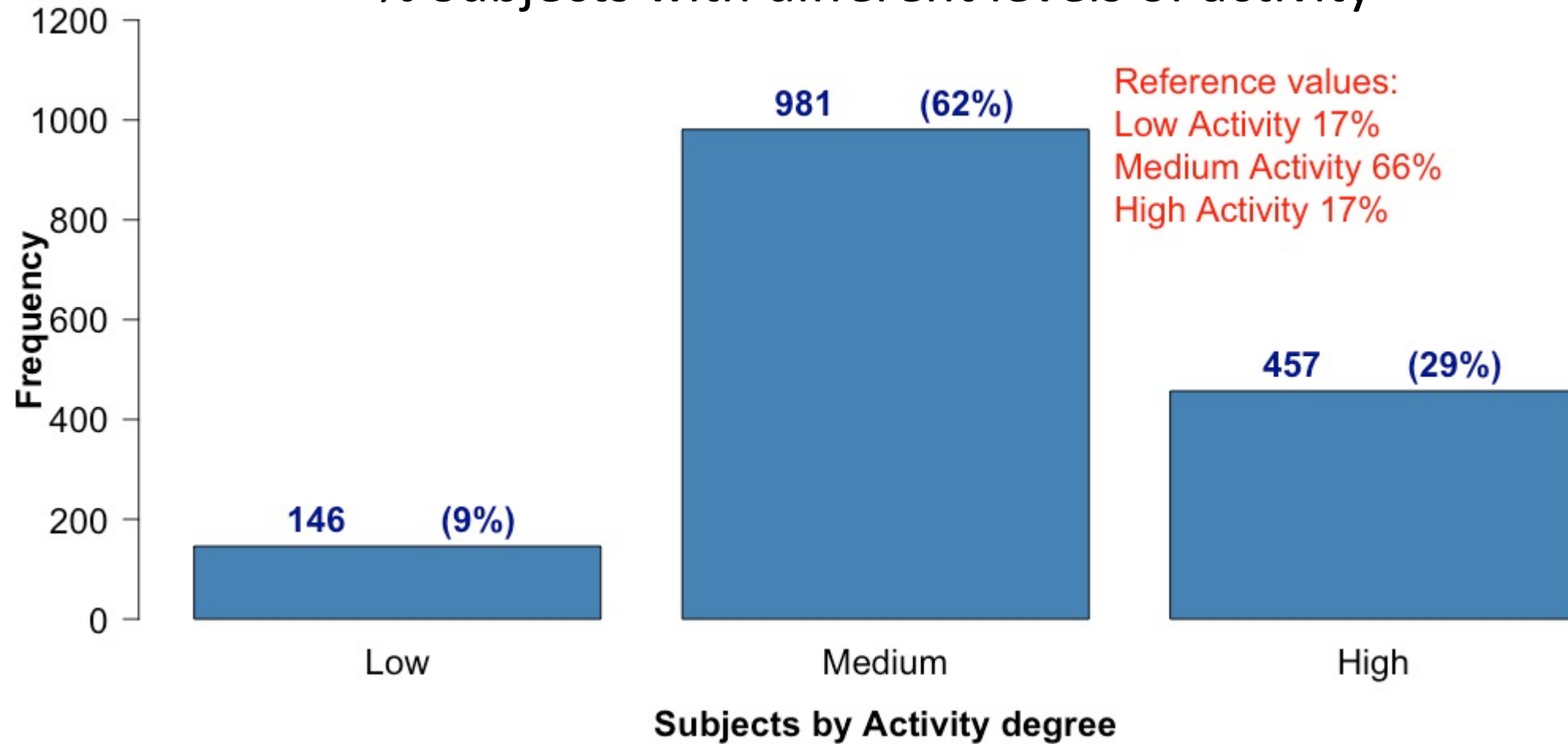
K5: Level of Activity of a subject during a term

Table 5. The number of actions that define the level of activity (K5, see Section 2.2) and percentage of subjects in Q2-2019 and Q2-2020 terms—classified according to the level of activity.

Activity Level	Actions Per User	% Subjects Q2-2019	% Subjects Q2-2020
Low	<15	17	8
Medium	between 15 and 80	66	62
High	≥ 80	17	29

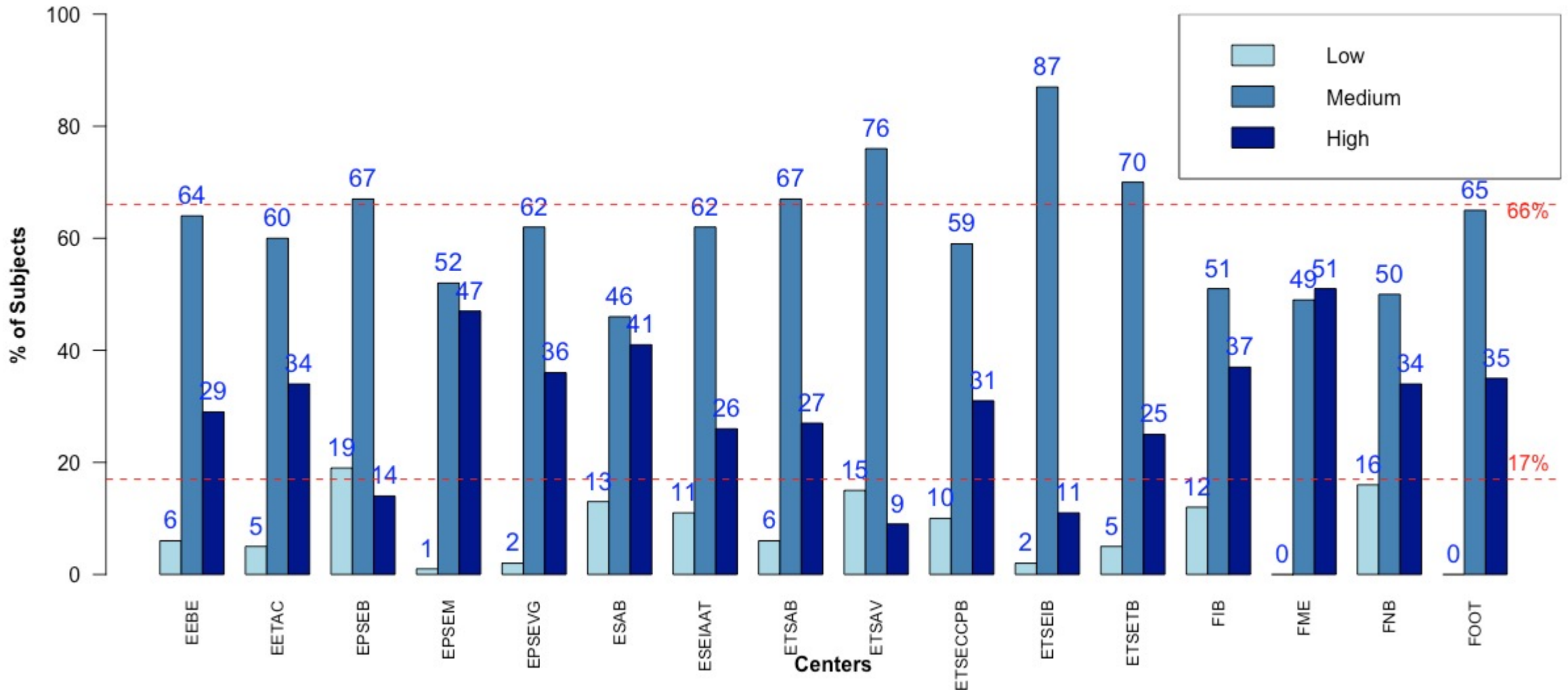
K5: Level of Activity of a subject during a term

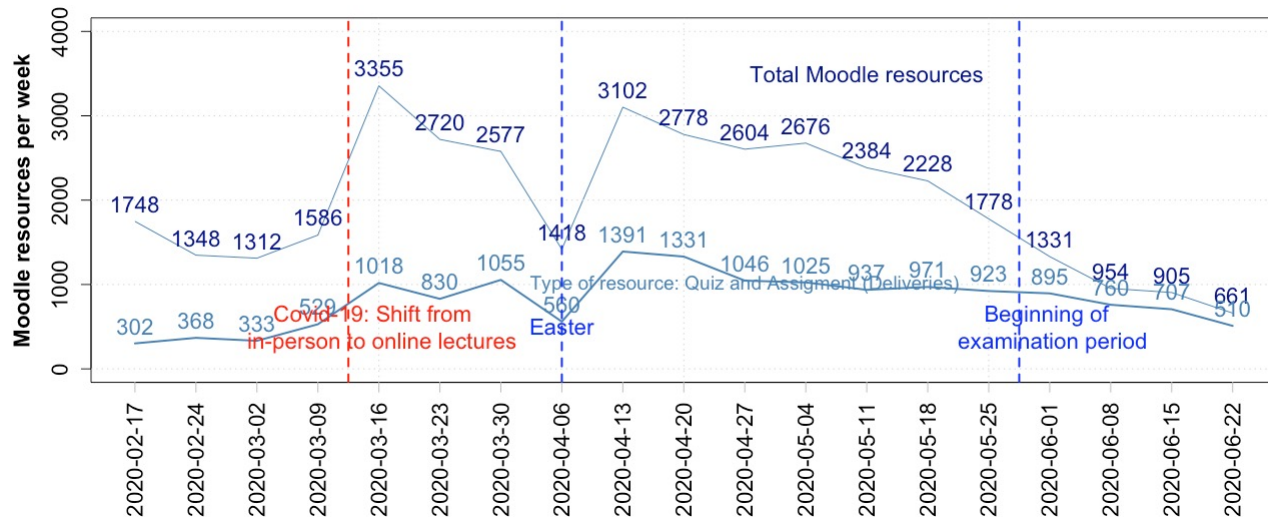
% Subjects with different levels of activity



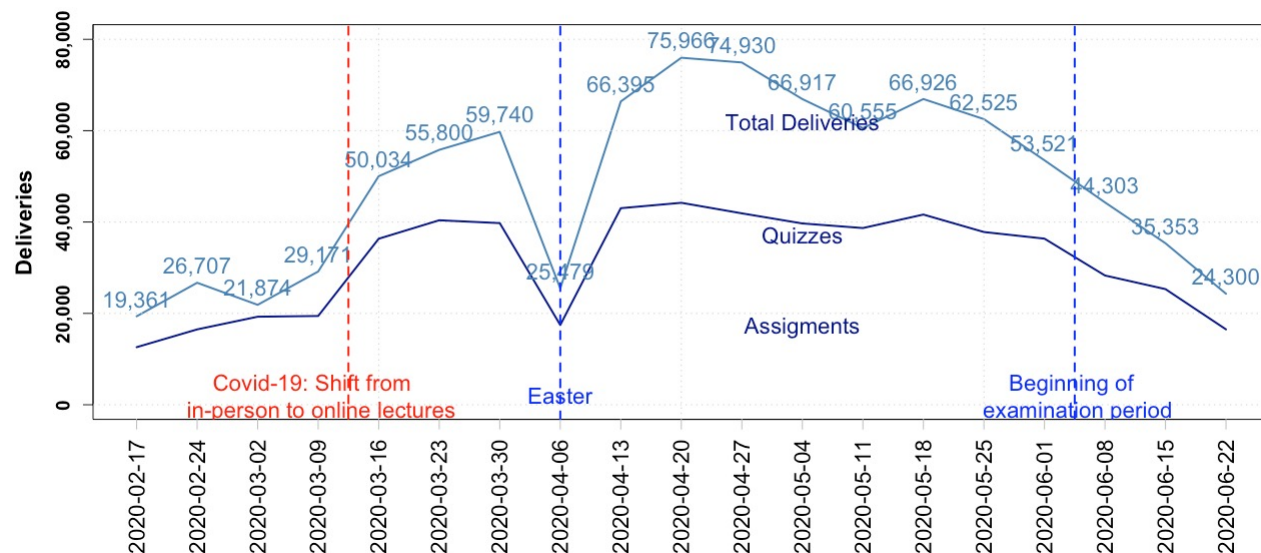
K5: Level of Activity of a subject per unit during a term

% Subjects with different levels of activity **per unit**





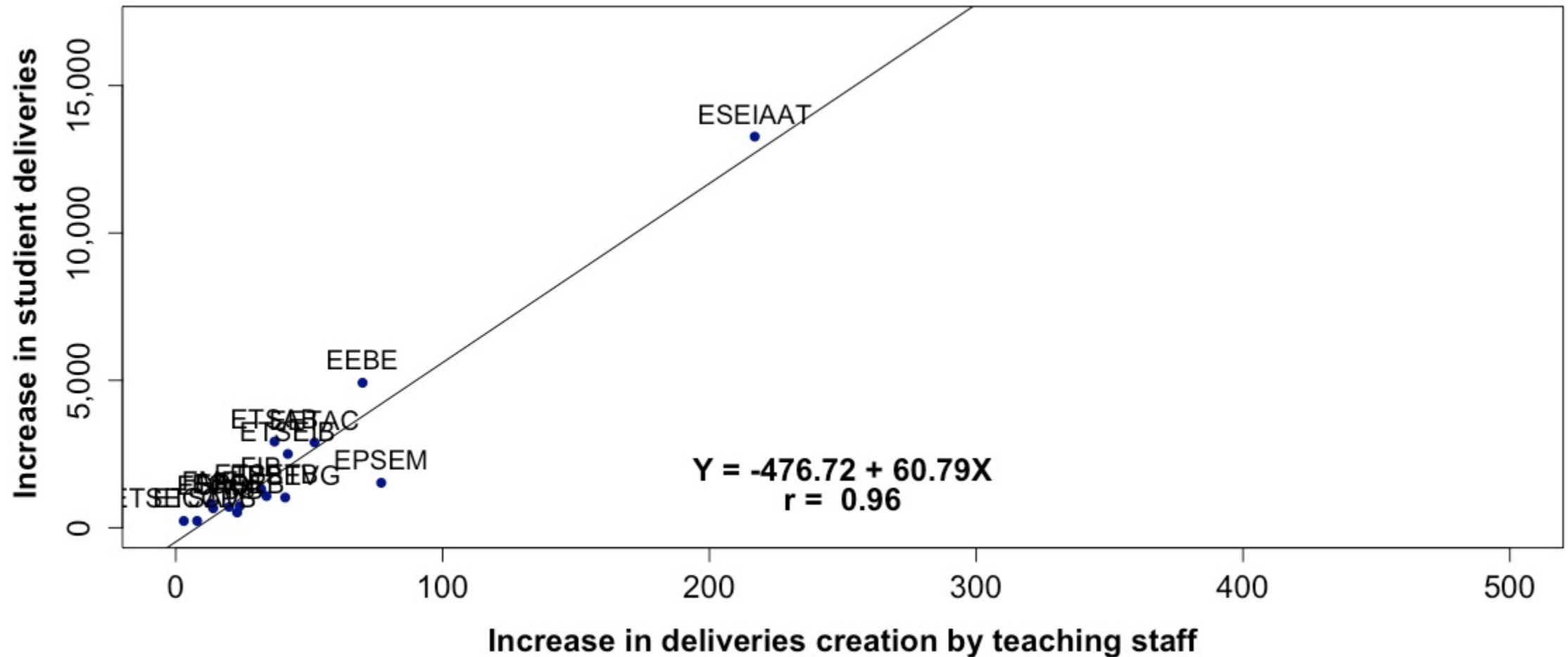
K6: Deliverables created by lecturers
per week

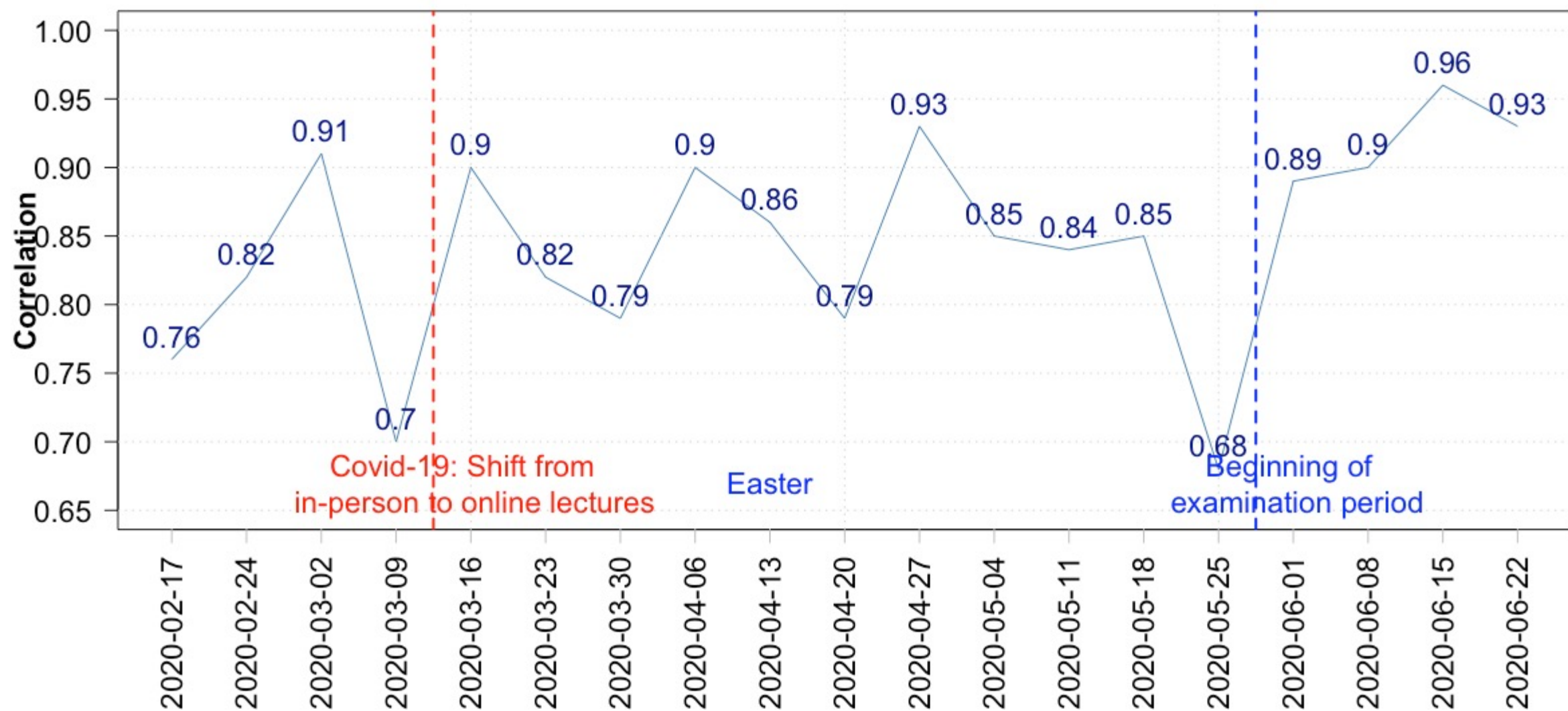


K7: Deliverables sent by students
per week

K7 vs K6

per center: week 20 June



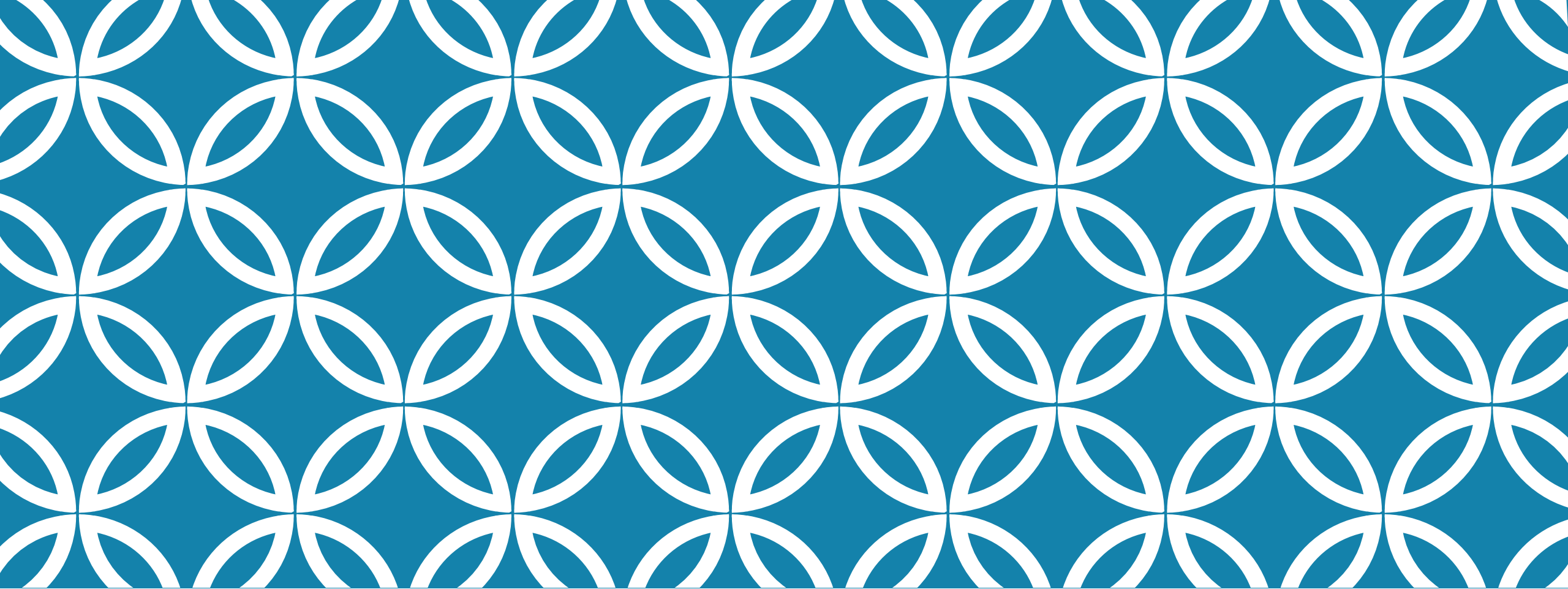


Conclusions

We propose a methodology and key indicators for extracting teaching information at the subject level, as well as the school centre and university levels in a general context.

We remark that Moodle indicators:

1. Save weekly
2. Save at level 1 of the subject
3. Save the aggregate (read, send, create), distinguishing use between students and lecturers
4. Save separately for activities created by lecturers and submitted by students.



THANK YOU!



% Actions per **subject** during Q2-2019 term

