Impact of Online Learning

Regarding the COVID-19 pandemic

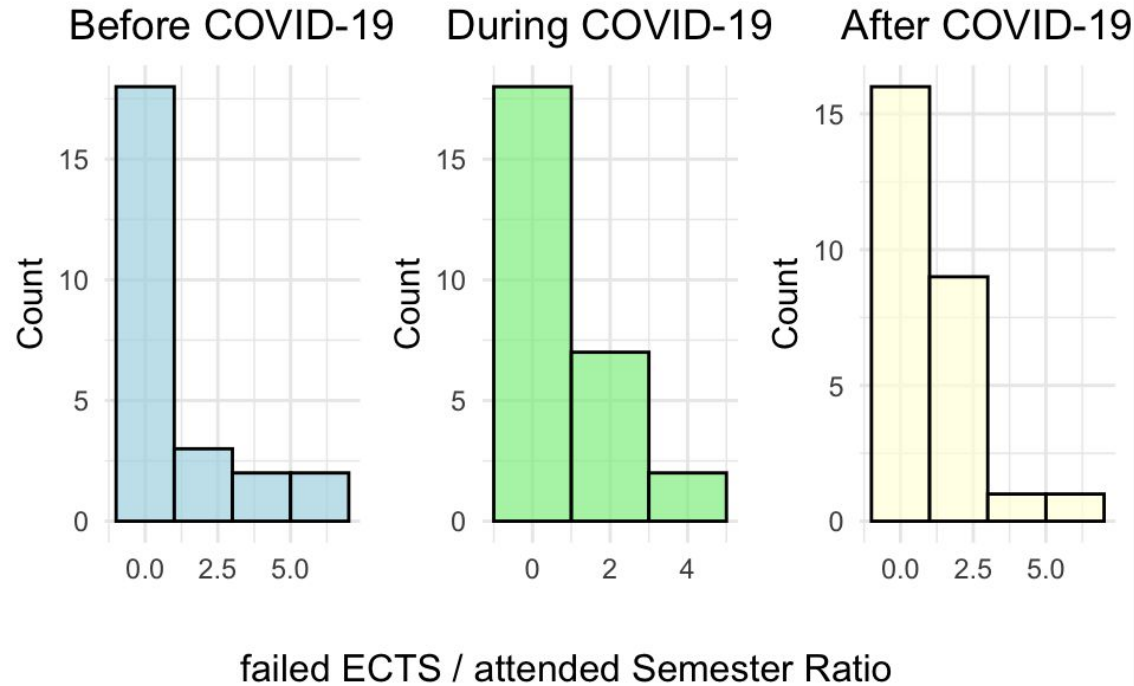Lukas Burtscher, Dante Godolja, Lukas Mahler

Survey Questions

1. Average Time for exam preparation
   a. Before, During, After COVID-19 in hours
2. Failed ECTS and attended semesters (e.g. 3 ECTS failed in 2 semesters)
   a. Before, During, After COVID-19 in ECTS/#semesters
3. Main source of learning (Internal or External)
   a. Before, During, After COVID-19

Preparation Time
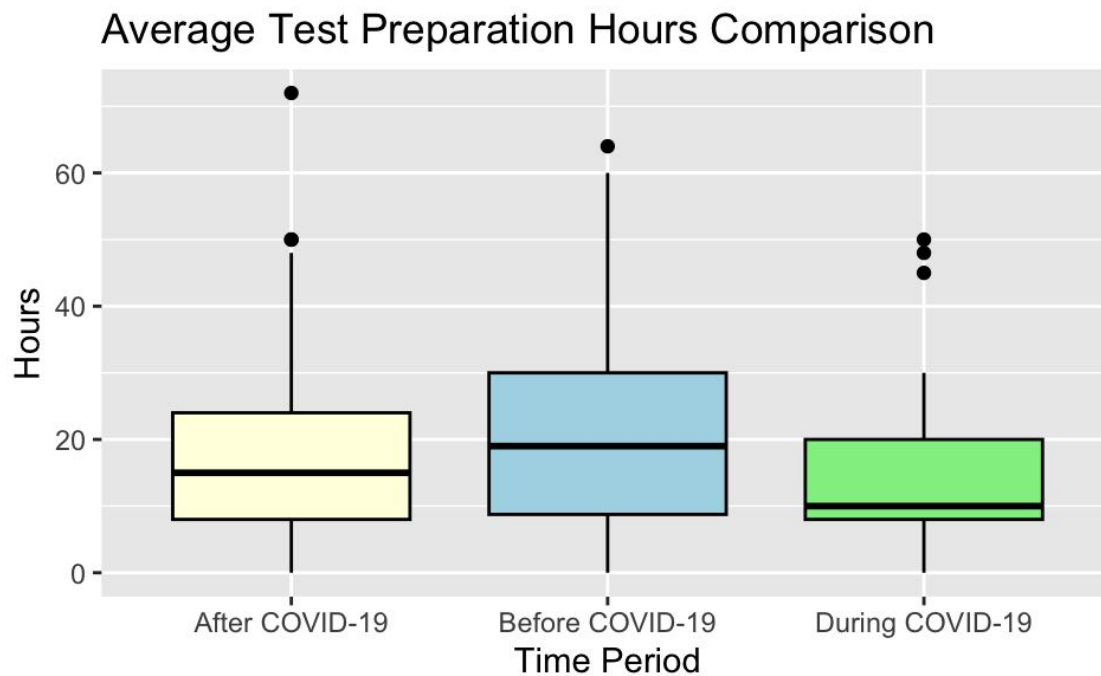
Failed ECTS
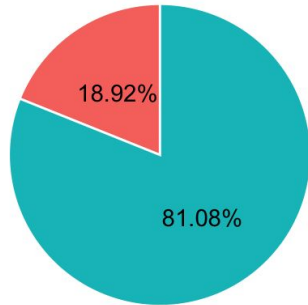
Demand of External Material

Before Corona
- 18.92% External
- 81.08% Internal

During Corona
- 37.84% External
- 62.16% Internal

After Corona
- 24.32% External
- 75.68% Internal
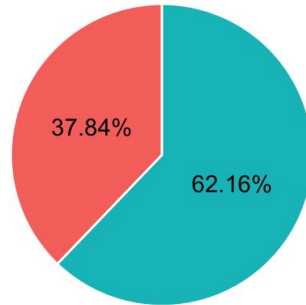
Labels
- External
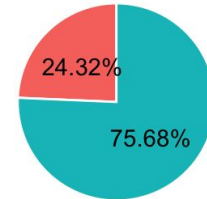- Internal

Proportion of Learning Source

Summary statistics

How many students fall into one category?

How did the behaviour of individual students change?

Differences always compared to pre COVID values

Preparation Times

Preparation Time

Amount of students who prepared for the exam for x hours

index	[0,10)	[10,20)	[20,30)	[30,40)	[40,50)	[50,60)	[60,70)	[70,80)	[80,Inf)
Before COVID	10	8	7	4	4	1	2	0	1
During COVID	13	13	5	2	2	1	0	0	1
After COVID	10	11	10	0	2	2	0	1	1

Preparation Time Difference

Preparation Time Difference

Amount of students who prepared x hours more/less for an exam for during and after COVID, base before COVID

index	[-Inf,-20)	[-20,-10)	[-10,-5)	[-5,0)	[0,1)	[1,5)	[5,10)	[10,20)	[20, Inf)
Difference During COVID	5	3	4	8	13	1	1	2	0
Difference After COVID	2	1	5	7	17	1	1	2	1

Failure Rates (ECTS/Semester)

Failure Rate

Amount of Students who failed x ECTS

index	[0,1)	[1,2)	[2,3)	[3,4)	[4,5)	[5,6)	[6,7)	[7,Inf)	<NA>
Before COVID	16	5	0	1	1	0	1	1	12
During COVID	15	9	1	0	1	1	0	0	10
After COVID	14	7	3	1	1	0	1	0	10

Failure Rate Difference

Failure Rate Difference

Amount of students with x different failed ECTS per semester for during and after COVID with base before COVID

index	[-Inf,-5)	[-5,-2)	[-2,-1)	[-1,0)	[0,1)	[1,2)	[2,5)	<NA>
Difference During COVID	3	0	2	3	10	5	1	13
Difference After COVID	2	1	2	5	10	0	5	12

Learning Sources

Learning Sources

Amount of students who used x learning source

index	External	Internal
Before COVID	7	30
During COVID	14	23
After COVID	9	28

Learning Sources Difference

Learning Sources Difference

Amount of students who switched learning source during and after COVID with base before COVID

from	to	during	after
External	External	6	4
External	Internal	1	3
Internal	External	8	5
Internal	Internal	22	25

Statistical Tests: Prep Time

- Shapiro-Wilk concluded that the data is not normally distributed -> we thus performed a Kruskal-Wallis Test
- Groups: time periods (before, during, after covid)
- p-value: 0.1757 -> no significant change in Preparation Time between the periods
- We can reject H1 that there is a decrease in test prep time during the pandemic

Statistical Tests: Performance

- Shapiro-Wilk concluded that the data is not normally distributed -> again Kruskal-Wallis test
- Groups: time periods (before, during, after covid)
- p-value: 0.7726 -> no significant change in Performance between the periods
- We can reject H1 that there were fewer negative results during covid

Statistical Tests: Study Materials

- Dealing with factor data -> Chi-Square Test of Independence
- p-value: 0.1431 -> no significant association between the periods and study material
- We can reject H1 that there is an increase in external material usage during covid