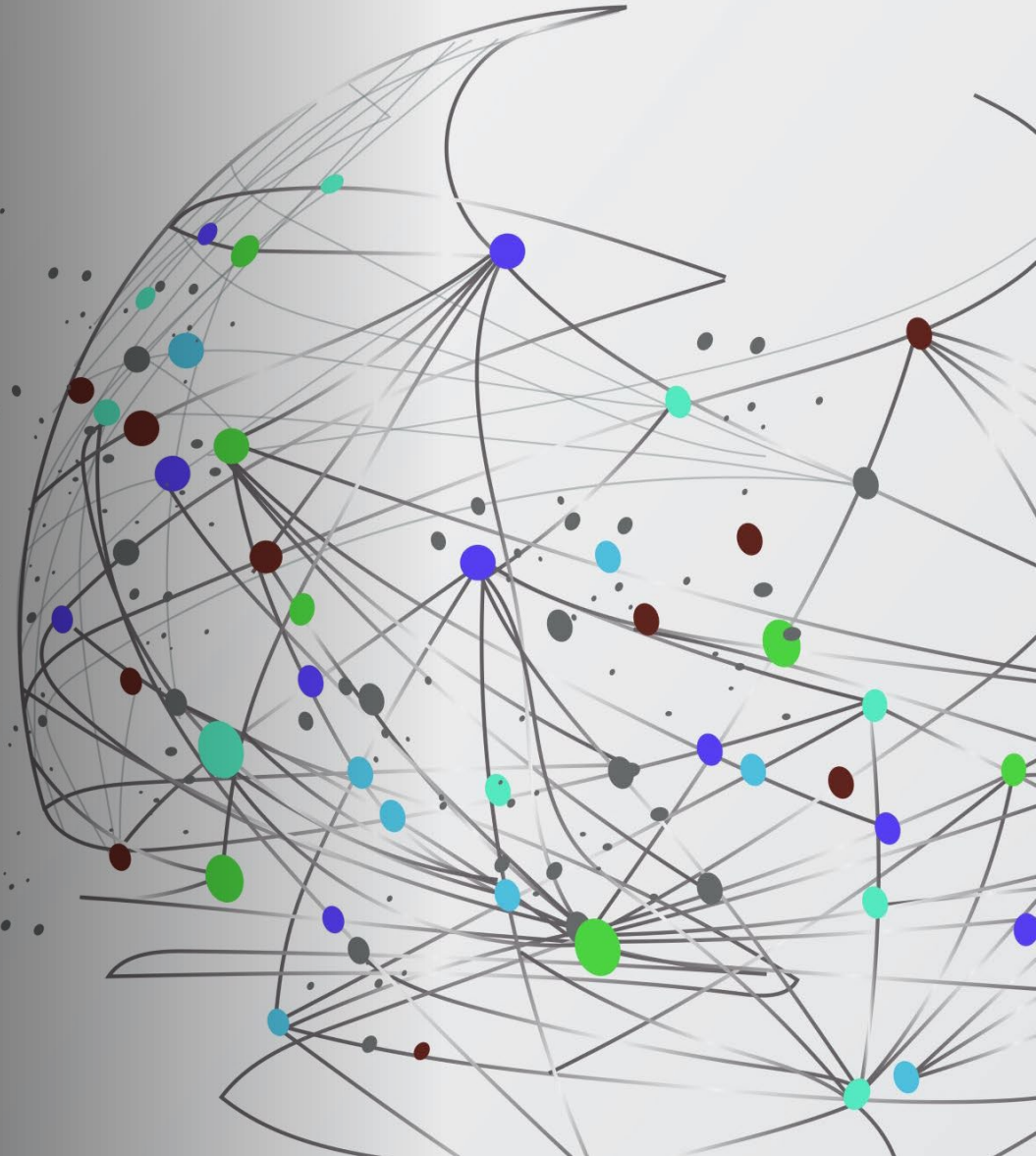# Webinars in higher education: attendance, connectivity issues and student/staff experience

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Background

Background

- The 2020/2021 academic years have seen an unprecedented move of teaching from traditional, in-person delivery to varying blends of online and in-person delivery.

- For many UK universities, all delivery moved online from January 2021

Background

- Figlio et al (2013) use experimental methods to analyse whether *internet-only* classes are perfect substitutes for *live* lectures

- Overall, there were insignificant differences between *internet-only* and *live* lectures.

- But, at a subgroup level, Hispanic students, Male students, and Low achieving students performed significantly better in the "live" environment.

Background

- Similarly, Engelhardt et al (2021) find little impact on students' outcomes from the pivot online in the second semester of 2019/20 (due to COVID)

- However, the male/female assessment gap was reduced.

Background

- However, Alpert et al (2016) find that, when compared with blended, or fully in-person, students who are wholly online perform significantly worse (4-5 points)

- Our study examines one possible avenue mechanism that might disadvantage particular subgroups in online education

Distractions within an "in person" classroom

- Growing evidence of the impact of distractions within a live classroom

- For example, Carter et al (2017) find that allowing computer usage within a "live" classroom lowers exam performance by 0.18s.d.

- Mechanism not identified, but could be due to "distractions" such as checking e-mail, internet shopping, etc.

Challenges through online teaching

- An additional challenge that is faced in online teaching is through connectivity

- Students can face distractions if the internet connection goes down mid-class

- To the author's knowledge, there is little to no analysis of the impact of loss of connectivity during live sessions on performance

Sample and Summary Stats

The study sample

Data from a Russel group university- three units

	Large group online Sessions	**Previous grade**
PG 1011 (Class size: 179) One Lecturer	8 lectures all using Blackboard Collaborate	UG grade, waiting for the data
UG 10024 (Class size: 332)	12 lectures all using Zoom	A level grade, waiting for the data
UG 20011 (Class size: 327) Two Lecturers	19 lectures 7 Blackboard Collaborate 11 Zoom	Maths for Econ, Economics 1 (1st year pre covid unit)

Summary stats: # of joins

Number of Joins	Obs	Mean	Std. Dev.	Min	Max
PG 1011 (BB)	1141	1.445	1.543	1	30
UG 10024 (Zoom)	2594	1.149	0.441	1	6
UG 20011 (BB)	1790	1.303	0.805	1	11
UG 20011 (Zoom)	1786	1.811	1.067	1	17
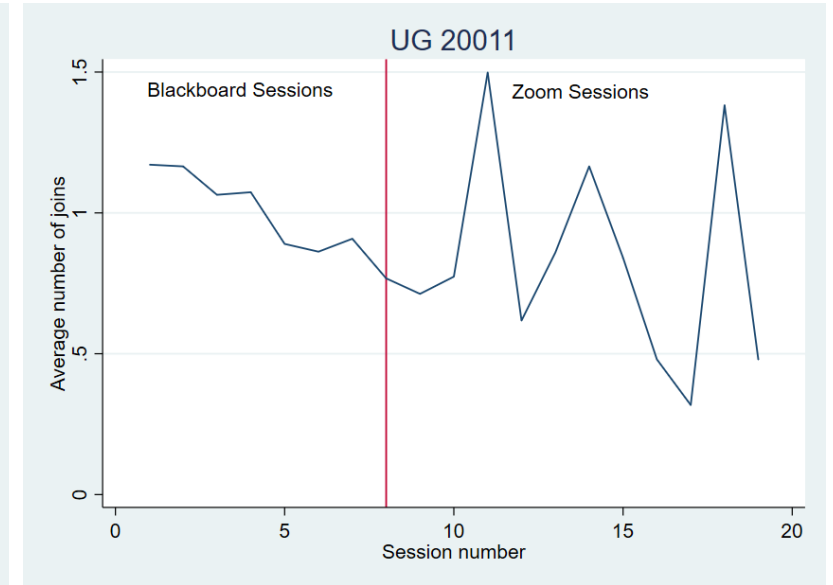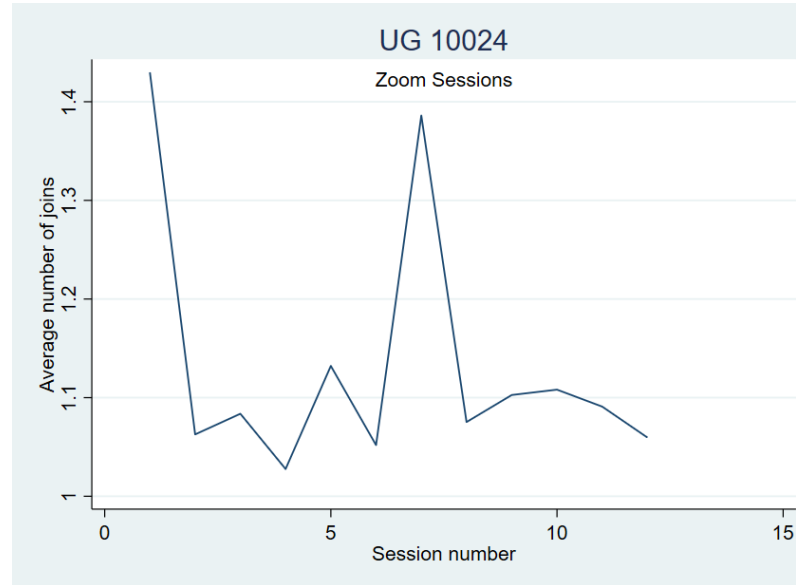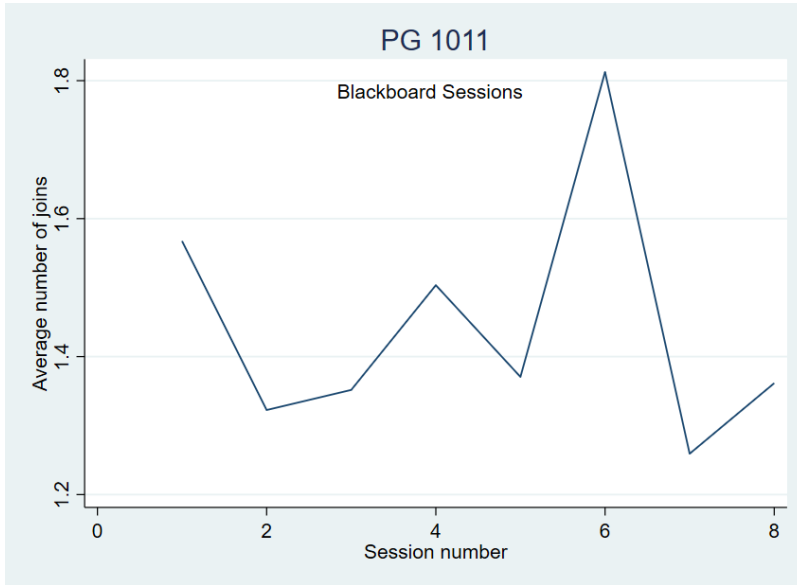
Summary stats: Final grade

- There is a slight negative trend in median marks with increasing numbers of joins
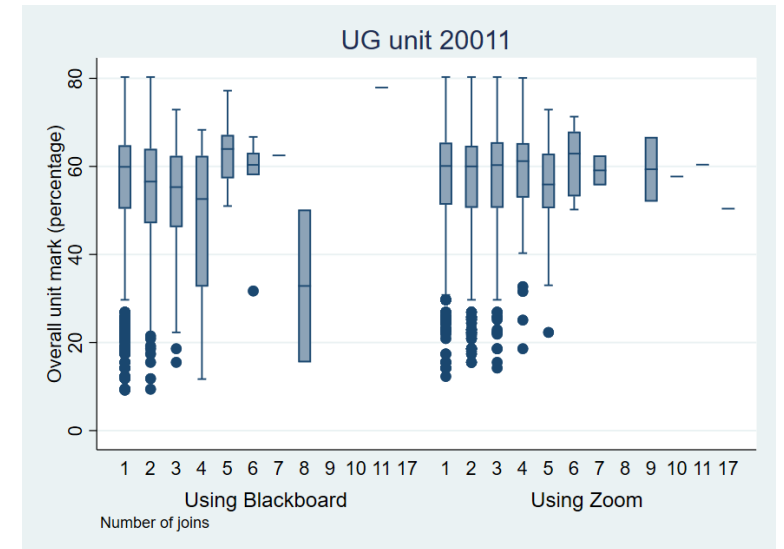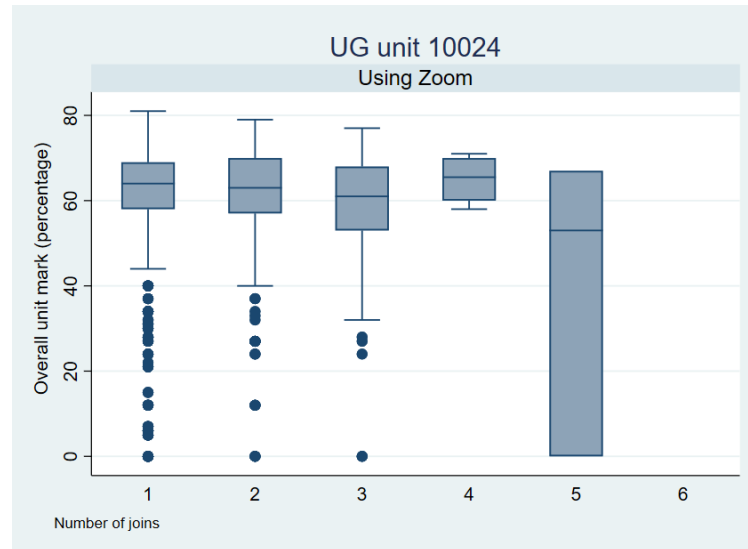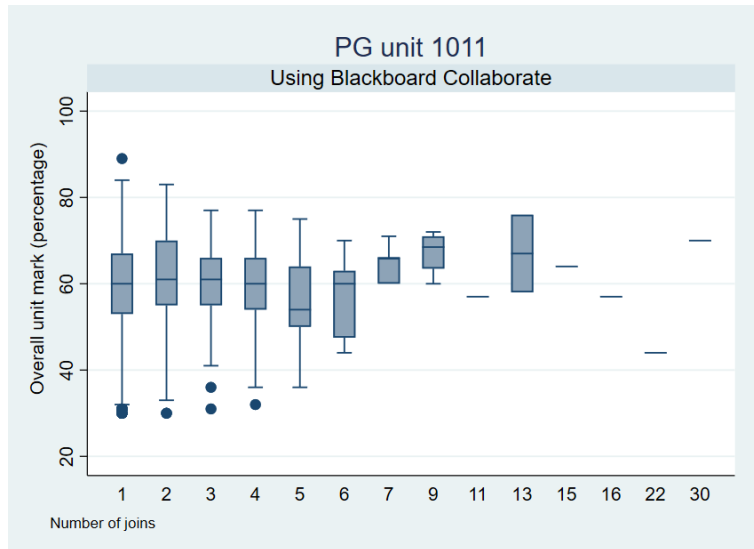
Zoom or Blackboard Collaborate: which platform is better for connectivity?

"I started with Blackboard Collaborate and then switched to Zoom. One reason was more issues with collaborate in terms of bad connections, couldn't hear the speaker." *(Academic staff)*

"I get kicked out of blackboard and zoom so they're the same for me" *(UG 2nd year student)*

"Student house's WiFi is not always the best..Zoom is a lot better in terms of connectivity" *(UG 2nd year student)*

UG 20011: Effect on number of Joins – Zoom vs Blackboard Collaborate session

VARIABLES	(1) OLS	(2) FE	(3) RE
Zoom	0.508***	0.511***	0.508***
	(0.0316)	(0.0337)	(0.0316)
Constant	1.303***	1.302***	1.306***
	(0.0223)	(0.0229)	(0.0238)
Observations	3,576	3,576	3,576
R-squared	0.067	0.066	
Number of students	-	327	327

- Student-session panel data (fixed effects) estimate shows that Zoom has more number of joins compared to BB

- Fixed effects estimate to eliminate internet availability, location, device etc unobserved effects at least to some extent

Effect on Grades

"I was disconnected three times...when you are so interested in something and all of a sudden it just snaps out, then you lose the focus.. then you re-join and the middle portion is just skipped and you don't know what he just said" (PG student)

PG 1011 - Effect on grades

VARIABLES	Final Marks	OLS Formative 1	Formative 2
Number of absences		-0.762*	
		(0.425)	
Average number of joins		0.317	
		(0.638)	
Constant		35.81***	
		(1.280)	
Observations		138	
R-squared		0.044	

PG 1011 - Effect on grades

Caution!
Endogeneity

		OLS	
VARIABLES	Final Marks	Formative 1	Formative 2
Number of absences		-0.762*	-0.407
		(0.425)	(0.682)
Average number of joins		0.317	0.276
		(0.638)	(1.412)
Constant		35.81***	33.36***
		(1.280)	(2.166)
Observations		138	105
R-squared		0.044	0.008

PG 1011 - Effect on grades

Caution!
Endogeneity

		OLS	
VARIABLES	Final Marks	Formative 1	Formative 2
Number of absences	-0.698	-0.762*	-0.407
	(0.657)	(0.425)	(0.682)
Average number of joins	0.198	0.317	0.276
	(1.389)	(0.638)	(1.412)
Constant	60.22***	35.81***	33.36***
	(2.390)	(1.280)	(2.166)
Observations	166	138	105
R-squared	0.016	0.044	0.008

UG 10024 – Effects on grades

Caution!
Endogeneity

| | OLS | | |
VARIABLES	Final Marks	Portfolio	Essay
Number of absences		-1.063***	
		(0.213)	
Average number of joins		0.855	
		(3.114)	
Constant		70.60***	
		(3.681)	
Observations		314	
R-squared		0.075	

UG 10024 – Effects on grades

Caution!
Endogeneity

VARIABLES	Final Marks	OLS	
		Portfolio	Essay
Number of absences		-1.063***	-0.223*
		(0.213)	(0.129)
Average number of joins		0.855	-1.588
		(3.114)	(1.893)
Constant		70.60***	61.95***
		(3.681)	(2.238)
Observations		314	314
R-squared		0.075	0.013

UG 10024 – Effects on grades

Caution!
Endogeneity

VARIABLES	OLS		
	Final Marks	Portfolio	Essay
Number of absences	-0.560***	-1.063***	-0.223*
	(0.145)	(0.213)	(0.129)
Average number of joins	-0.439	0.855	-1.588
	(2.118)	(3.114)	(1.893)
Constant	65.28***	70.60***	61.95***
	(2.504)	(3.681)	(2.238)
Observations	314	314	314
R-squared	0.048	0.075	0.013
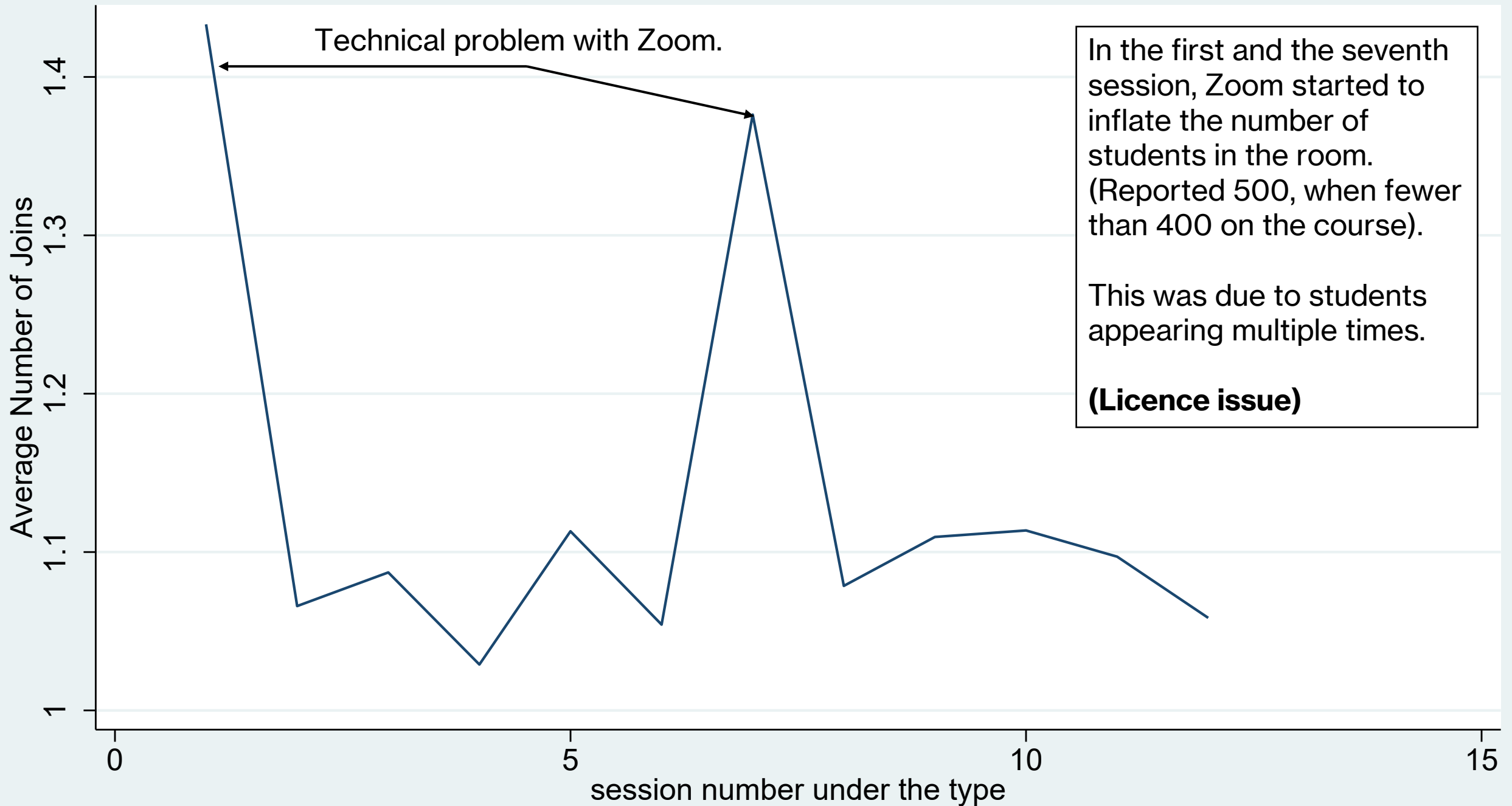
Technical problem with Zoom.

In the first and the seventh session, Zoom started to inflate the number of students in the room. (Reported 500, when fewer than 400 on the course).

This was due to students appearing multiple times.

(Licence issue)

UG 10024 – Effects on grades. Average joins calculated ignoring sessions 1 and 7

		OLS	
VARIABLES	Final Marks	Portfolio	Essay
Number of absences	-0.698***	-1.294***	-0.306**
	(0.169)	(0.248)	(0.152)
Average number of joins	-3.287	-5.867*	-1.647
	(2.219)	(3.257)	(1.990)
Constant	67.97***	77.23***	61.77***
	(2.296)	(3.370)	(2.059)
Observations	314	314	314
R-squared	0.054	0.084	0.013

UG 20011 - Effect on grades

Number of joins seem to affect within term assessment (Caution: Endogeneity)

		OLS	
VARIABLES	Final Marks	Summative 1	Summative 2
Number of absences		-0.575*	
		(0.342)	
Average number of joins		-2.712	
		(3.412)	
Zoom		-3.651	
		(5.109)	
Previous score		0.515***	
		(0.0913)	
Constant		37.17***	
		(8.809)	
Observations		276	
R-squared		0.137	

UG 20011 - Effect on grades

Number of joins seem to affect within term assessment (Caution: Endogeneity)

VARIABLES	Final Marks	OLS Summative 1	Summative 2
Number of absences		-0.575*	-0.725**
		(0.342)	(0.357)
Average number of joins		-2.712	-7.489**
		(3.412)	(3.639)
Zoom		-3.651	-0.690
		(5.109)	(5.387)
Previous score		0.515***	0.555***
		(0.0913)	(0.104)
Constant		37.17***	36.89***
		(8.809)	(9.601)
Observations		276	271
R-squared		0.137	0.146

UG 20011 - Effect on grades

Number of joins seem to affect within term assessment (Caution: Endogeneity)

VARIABLES	OLS		
	Final Marks	Summative 1	Summative 2
Number of absences	-0.594**	-0.575*	-0.725**
	(0.299)	(0.342)	(0.357)
Average number of joins	-3.775	-2.712	-7.489**
	(3.318)	(3.412)	(3.639)
Zoom	5.187	-3.651	-0.690
	(4.762)	(5.109)	(5.387)
Previous score	0.855***	0.515***	0.555***
	(0.0836)	(0.0913)	(0.104)
Constant	8.731	37.17***	36.89***
	(7.752)	(8.809)	(9.601)
Observations	276	276	271
R-squared	0.358	0.137	0.146

Effect on Attendance

Number of absences over time
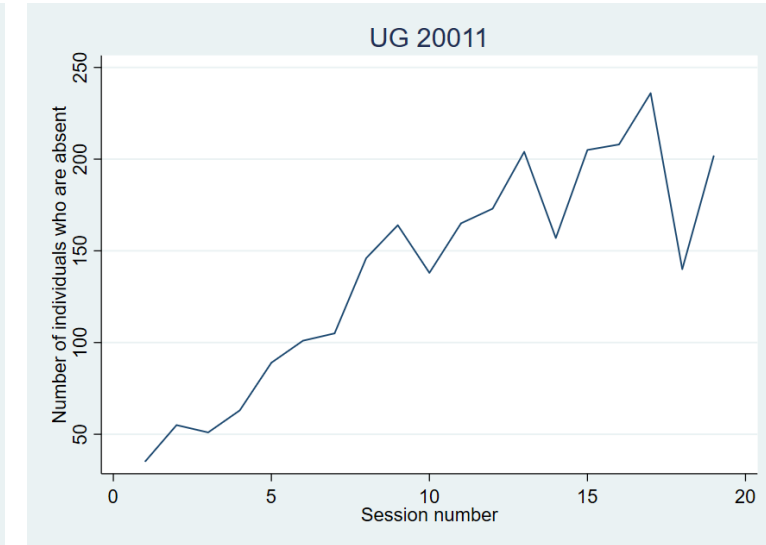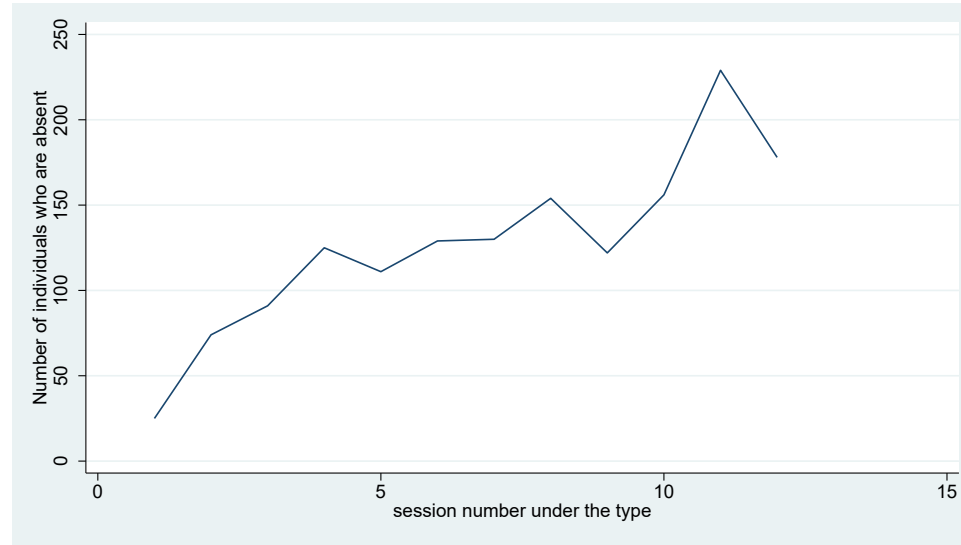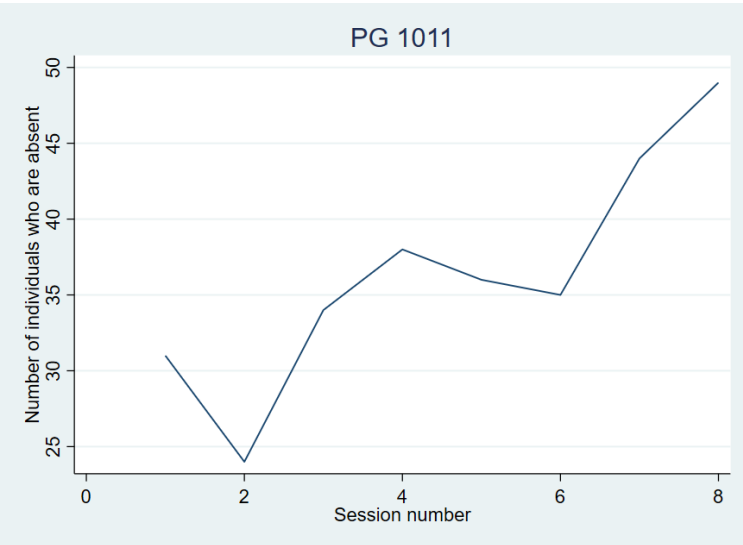
Increasing absences across the term, but are the absences related to connectivity problems in the preceding lectures?

Effect on attendance

	OLS		
VARIABLES	PG 1011	UG 10024	UG 20011
Number of joins in previous session	0.005		
	(0.006)		
Absent in previous session	0.508***		
	(0.034)		
Constant	0.118***		
	(0.012)		
Observations	1,253		
N	179		
T	8		
R-squared	0.237		

Effect on attendance

VARIABLES	OLS		
	PG 1011	UG 10024	UG 20011
Number of joins in previous session	0.005	-0.00453	
	(0.006)	(0.0223)	
Absent in previous session	0.508***	0.490***	
	(0.034)	(0.0296)	
Constant	0.118***	0.229***	
	(0.012)	(0.0269)	
Observations	1,253	3,320	
N	179	332	
T	8	12	
R-squared	0.237	0.236	

Effect on attendance

Caution!
Endogeneity

VARIABLES	OLS		
	PG 1011	UG 10024	UG 20011
Number of joins in previous session	0.005	-0.00453	0.0132*
	(0.006)	(0.0223)	(0.0073)
Absent in previous session	0.508***	0.490***	0.572***
	(0.034)	(0.0296)	(0.0157)
Constant	0.118***	0.229***	0.193***
	(0.012)	(0.0269)	(0.0132)
Observations	1,253	3,320	5,886
N	179	332	327
T	8	12	19
R-squared	0.237	0.236	0.299

Focus Group Discussions

FGD with students

- Connectivity issues:
  - Some students mentioned being 'kicked out' from classes using either platform

  "I get kicked out of blackboard and zoom so they're the same for me" (UG 2nd year student)

  "Didn't drop out of either, but Zoom is a million times better, just because of functionality" (UG 2nd year student)

  "Student house's WiFi is not always the best..Zoom is a lot better in terms of connectivity" (UG 2nd year student)

  - Others highlighted the flexibility in using Zoom - join in using mobile devices

  "I think Zoom is a much better platform. the modules that are using Zoom have been conducted much better than those using Blackboard Collaborate" (UG 2nd year student)

- Other general comments:
  - improved student engagement in large lectures with the availability of the chat function
  - online submission of assessments, and online office hours
  - students generally like activities as a flipped content rather than pure videos

FGD with academic staff

- There were perceived benefits of a Zoom session compared to a Blackboard collaborate session regarding
    - (perceived) better connectivity

    "I started with Blackboard Collaborate and then switched to Zoom. One reason was more issues with collaborate in terms of bad connections, couldn't hear the speaker."

    "Switched to Zoom, quite a few connection problem reported by students and restrictions for large sessions"

    - seeing many participants, and
    - the ease of sharing a screen or joining with an iPad, sharing software e.g., explain everything
- The major issue staff mentioned was some inappropriate chat messages using Zoom, due to the sessions perceived as informal and/or the flexibility of the students joining in an unidentifiable format

What's next

- Explore the location of study information, if available

- Revise the estimates for PG 1011 and UG 10024 units with previous score data when available