

Understanding the Hybrid Classroom in Economics

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Introduction

This project studied the differences between online and in-person students (“cohorts”) in a hybrid intermediate economics course delivered in Summer 2021.

We were motivated by our experiences over the pandemic, and wanted to know if combining different instructional techniques in a classroom necessarily advantages one group of students over another – and whether this can be ameliorated by course design.

Teaching Context

The targeted course was ECON 326, a 3rd year course in the application of statistical methods to economic data for economics (BA) majors.

- This course is required for graduation, and is generally considered to be “challenging”
- It involves both theoretical concepts and practical applications, specifically including coding and statistical analysis of data

The section had 37 students enrolled, with 20 in the online cohort and 17 in the in-person cohort.

- There was 1 instructor and 1 TA for the in-class instruction. Course design was supported by a GAA and another instructor.

The course was carried out in the summer, with six hours of instruction per-week, over the shortened summer term.

This took place during the COVID-19 pandemic, which required additional restrictions and management during the semester.

Pedagogical Approach

A key goal of the course design was to ensure equality and interaction between the two hybrid cohorts during instruction. The course was taught in two parts:

- Lectures, which were in-person and livestreamed via Zoom, and recorded for later reference.
- Hands-On, which were synchronous sessions in which students interacted to solve problems online and in-person

This is best described as a “concurrent + asynchronous hybrid” model.

The hands-on part of the course utilized interactive Jupyter notebooks, which allowed students to manipulate statistical tools and answer questions via a web-browser

Student groups were created, combining online and in-person students, who communicated via Zoom break-out groups

The course was assessed on the basis of weekly assignments, based on the Hands-On activities, two exams (midterm/final) and participation.

- The midterm was take-home
- The final exam was proctored

Evaluation

We evaluated this course using a pair of surveys (pre/post) which asked students about their experience in the course. We also looked at aggregate course performance data, such as grades and student evaluations across the two cohorts.

Findings

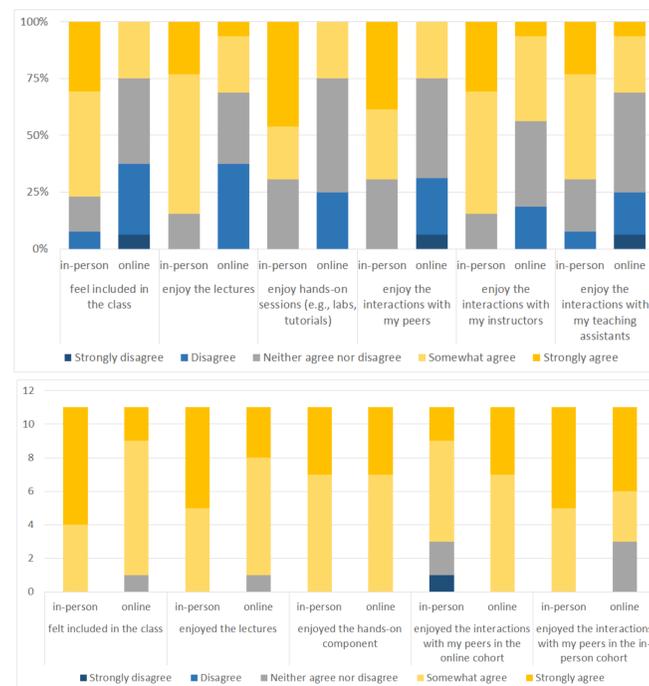
Overall, students in both cohorts reported strong, positive experiences with the course – and there were few obvious systematic differences between the groups:

- Small differences between participation and peer evaluations, favoring in-person students
- No significant differences in terms of assessments and grades
- No significant differences in affective assessment of the course (Fig 2.)

This is markedly different when compared to past experiences with online versus in-person (Fig 1)

Fig 1: Comparison of Experiences

The top panel shows student experiences in **past** online and in person courses. The bottom panel shows the difference between online and in-person students in **our** course.



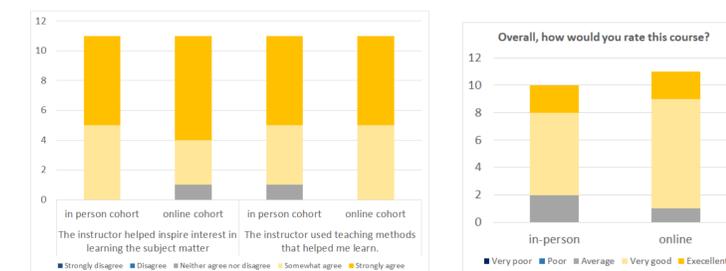
Conclusions

We believe that this project demonstrates that online learning does not have to disadvantage students, when compared to in-person learning. However, we also believe that this is highly contingent upon both the course and curriculum design:

- Hybrid classes need to be designed as combined experiences – including learning activities, student interaction, and assessment. It is not sufficient to simply move an in-person course partially online.
- The largest challenge is in terms of student interaction: facilitating meaningful learning relationships in the course is difficult, but essential
- Hybrid courses generally need more support and more overhead – both in terms of technology and human expertise

Fig 2: Difference in Experiences

The left panel describes key affective learning outcomes for students in the online and in person cohorts. The right panel gives their evaluation of the course overall.



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