



Crisis Preparedness in Higher Education

Insights from the COVID-19 Online Learning Shift

Proactivity Matters

The COVID-19 pandemic required higher education to rapidly reexamine how it delivers coursework and resources to the academic community. In a matter of weeks, learning institutions transitioned in-person operations to digital platforms—and in many cases, with limited infrastructure in place.

The California Community College system offers insight into how this online shift played out across higher education. Dr. Cassandra Hart and Ph.D. student Emily Alonso (University of California, Davis) and Drs. Di Xu and Michael Hill (University of California, Irvine) uncovered that pre-crisis preparedness predicted a community college's successful transition to digital learning. **Colleges that invested in online education infrastructure prior to the pandemic, significantly mitigated declines in student outcomes.**

[The research team's findings](#) highlight a critical opportunity for all educational institutions to build resilience in the face of future crises. Whether severe weather, intruder alerts, or shifts in staffing, colleges that invest in resources and support for online education are better equipped to adapt to emergencies. **They minimize disruptions to student success and strengthen educational continuity.**

Key Research Findings

Student Outcomes

1. There was a notable decline in course completion and passing rates during the pandemic.

Average course outcomes significantly changed during COVID. Students with intended face-to-face enrollment **were 8.5 percentage points less likely to complete a course** during Spring 2020 compared with pre-COVID. They were also **3.4 percentage points less likely to pass a course with a C or above**.

These changes to successful course completion suggest that the decline in student performance was driven by an increased probability of course withdrawal. In fact, **excused withdrawals increased by 16 percentage points** between Spring 2020 and previous terms.

2. Students with prior online learning experiences performed better than those without.

Declines in performance were much smaller for online students than students with face-to-face enrollment. While online students were less likely to complete a course during Spring 2020, the total change in completion relative to pre-COVID terms was only one-third the change in completion documented for students who were originally in a face-to-face course (Table 1, Panel B, Column 1). **Students who were already enrolled in online courses actually had an increased likelihood of passing their course with a grade of C or better compared to online students in previous terms.**

Students in face-to-face courses with limited online learning experiences particularly suffered during COVID. While students in intended-face-to-face classes with no prior online experience had a 10 percentage point decline in the likelihood of completing a course compared to similar students in pre-COVID terms, students in face-to-face classes who had previous online experience saw smaller declines in completion rates of 7 percentage points.

Table 1. Student Outcome Changes During Spring 2020: Main Results

| | (1) COMPLETE | (2) PASS/A/B/C | (3) FAIL | (4) WITHDRAW | (5) EW |
|---|----------------------|----------------------|----------------------|---------------------|---------------------|
| Panel A. Main Specification, Students in Intended-Face-to-Face Courses Only | | | | | |
| COVID: Face-to-Face Courses | -0.085*** [0.001] | -0.034*** [0.001] | -0.031*** [0.001] | 0.081*** [0.001] | 0.162*** [0.001] |
| N | 30,697,367 | | | | |
| Panel B. Students in Intended-Online Courses vs. Intended-Face-to-Face | | | | | |
| COVID: Online Courses | -0.027*** [0.001] | 0.035*** [0.001] | -0.050*** [0.001] | 0.026*** [0.001] | 0.126*** [0.001] |
| Diff. Impact for Face-to-Face Courses | -0.058*** [0.001] | -0.070*** [0.001] | 0.019*** [0.001] | 0.056*** [0.001] | 0.036*** [0.001] |
| N | 37,980,964 | | | | |
| Panel C. Students in Intended-Face-to-Face Classes, by Prior Online Experience | | | | | |
| COVID: Prior Online | -0.068*** [0.001] | -0.011*** [0.001] | -0.036*** [0.001] | 0.065*** [0.001] | 0.148*** [0.001] |
| COVID: No Prior Online | -0.104*** [0.001] | -0.061*** [0.001] | -0.026*** [0.001] | 0.100*** [0.001] | 0.179*** [0.001] |
| P-val (Diff) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| N | 30,697,367 | | | | |

Note. *** = $p < 0.01$. ** = $p < 0.05$. * = $p < 0.10$. EW = Excused Withdrawal.

Organizational Factors

1. Pre-crisis learning resources mitigated student performance during COVID.

Distance education (DE) personnel and in-house training programs around online pedagogy *that were established before COVID* played a large role in student performance during the pandemic. **One additional DE representative per 1,000 students reduced the magnitude of the observed COVID effects by roughly one-half.** Additionally, institutions that already offered instructor trainings for online coursework saw smaller declines in student outcomes during Spring 2020.

2. College responses to the pandemic were associated with student success.

Changes to student performance outcomes during COVID were also moderated by an institution's level of response to the pandemic. While the results were smaller and less consistent than pre-COVID measures, **schools that increased the types of technology distributed to students, diversified their approaches to instructor training, and offered more student trainings for varying skill sets saw smaller declines in performance** while shifting from in-person to remote learning.

Preparedness Enables Student Success

When schools rapidly and unexpectedly transition to online coursework, students pay the price. **However, college administrations, policymakers, and other key decision makers may be able to reduce the impacts that crises like COVID-19 have on learning outcomes by investing in:**

- Distance education programs and services, including increased opportunities for remote learning and teaching
- Faculty and student trainings on maintaining online instructional effectiveness and best practices for online classrooms
- Pre-crisis planning and the establishment of emergency protocols for when a college must switch to online coursework
- Ongoing evaluations to understand how online learning and teaching function outside of crisis situations

When colleges take a robust approach to crisis planning and management, they empower students, faculty, and staff to face emergencies with confidence. The academic community might not be able to predict the next crisis, but it can build everyone's resilience by planning for it now.



Read the full article [COVID-19 in California Community Colleges: College Responses, College Resources, and Student Outcomes](#) to learn more about this research project and findings.

AUTHOR BIOGRAPHIES

Cassandra Hart is a Professor in the School of Education at the University of California, Davis. **Di Xu** is a Professor in the School of Education at the University of California, Irvine. **Emily Alonso** is a PhD student in the School of Education at the University of California, Davis. **Michael Hill** is an Assistant Project Scientist at the University of California, Irvine.

ABOUT THE SCHOOL OF EDUCATION

The UC Davis School of Education's mission is to marshal the knowledge and resources of the University of California, the world's pre-eminent public research university, to confront and eliminate inequities among people and communities through the generation of impactful knowledge and the promise of education. Visit education.ucdavis.edu to learn more.