

# Learning Together: Experimental Evidence on Promoting Connections in Remote Classes

Michelle E. Benedum, *University of Colorado Boulder, USA*

Sarah E. Brown, *University of Colorado Boulder, USA*

Tyler Garrett, *University of Colorado Boulder, USA*

Sarah Wilson Sokhey, *University of Colorado Boulder, USA*

## ABSTRACT


How can instructors best foster connections among students when learning is fully remote? This article describes a pedagogical experiment conducted in two large introductory political science courses at a large public university in the 2020–2021 academic year. We randomly assigned groups of students to different sets of instructions on how to study together remotely for an exam. Our strongest finding is that almost any effort by an instructor prompting students to work together helps students to feel more connected to one another; however, students often need to see and hear one another to feel connected. We find this to be tremendously encouraging—relatively easy interventions can result in significant improvements in learning.


In May 2022, Dr. Jonathan Malesic wrote an opinion piece with the tagline, “Welcome to Pandemic University,” announcing—as many of us surely have felt—that “[m]y students are not OK” (Malesic 2022). He described the lasting and real damage that resulted from the emergency switch to remote teaching. Although in-person classes have mostly returned, remote learning was an important part of higher education before the pandemic and will remain so. For many students, remote higher education may be the only viable path to a degree amid caretaking responsibilities and other jobs. For summer and other off-term instruction, remote courses fill an


important need for students who are seeking to catch up or get ahead in their degree requirements. Furthermore, whereas many of us longed for a return to in-person learning, the pandemic also encouraged us to think creatively about how to best teach and engage with our students in a remote format.


This article presents experimental research conducted during the pandemic about how to best connect with students with one another in a remote-learning environment (Benedum et al. 2023). Educators have long recognized that personal connections can be vital for learning and equity in the classroom, but these connections are uniquely difficult to foster in fully remote learning. This article is organized as follows. First, we discuss the challenges of remote and pandemic teaching and describe the importance of building personal connections in the classroom, particularly among students.

Second, we describe our experiment that was designed to evaluate which interventions best promote connections among students in fully remote learning. We used two large introductory political science courses at a large flagship state university for this study. Before the pandemic, most courses were taught in person, but the university also offered many online courses—particularly those held during the summer and winter breaks. Our results indicate that almost any intervention fosters connections among

**Michelle Benedum**  is a PhD candidate in political science at the University of Colorado Boulder and director of diversity, equity, and inclusion initiatives through graduate and professional student government. She can be reached at [michelle.benedum@colorado.edu](mailto:michelle.benedum@colorado.edu).

**Sarah Brown**  is a PhD candidate in political science at the University of Colorado Boulder. She can be reached at [sarah.e.brown@colorado.edu](mailto:sarah.e.brown@colorado.edu).

**Tyler Garrett**  is director of government relations for Rocky Mountain Farmers Union. He can be reached at [tyler.garrett@colorado.edu](mailto:tyler.garrett@colorado.edu).

**Sarah Wilson Sokhey**  is associate professor of political science at the University of Colorado Boulder, director of graduate training at the university's Institute of Behavioral Science, and director of the Studio Lab for Undergraduate Research. She can be reached at [sarah.sokhey@colorado.edu](mailto:sarah.sokhey@colorado.edu).

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students and that instructor-organized video conferencing is most effective. Previous studies of remote learning were limited by the reality that certain types of students were more likely to enroll in online courses. The pandemic provided an opportunity to avoid this selection effect.

Third, we conclude with suggestions for building student connections in remote environments. Our students deserve courses that actively promote learning together. More effectively building personal connections may help all of us to recover from the trauma imposed by the pandemic on teaching and learning.

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#### PANDEMIC TEACHING AND THE IMPORTANCE OF CONNECTION

With the onset of the COVID-19 pandemic, many educators had to quickly transition their courses to the online modality and make changes to their curriculum and pedagogy because this switch resulted in limited participation, communication barriers, and difficulty reading verbal and nonverbal cues from students (An and Frick 2006; Ching and Hsu 2015; Coppola, Hiltz, and Rotter 2001; Cross and Polk 2018; Hrastinski 2008, 2009; Ice et al. 2007). Many students struggled with isolation from their classmates in addition to learning in a new modality (Cross and Polk 2018; Goodyear and Zenios 2007; Koole 2014; Lapadat 2007).

Remote learning will continue to be a major part of higher education after the COVID-19 pandemic (Hodges et al. 2020). However, it presents unique challenges in fostering personal connections among students, which is especially vital for their learning during a period of crisis such as the COVID-19 pandemic (McMurtie 2020; Neuhaus 2020; Shin 2021). Supportive social networks provide psychological and emotional support (Coupland 2003; McInnerney and Roberts 2004) and result in lower cortisol stress levels that otherwise may impair a student's ability to access course content and engage in higher-order thinking skills (Frenzel, Pekrun, and Goetz 2007; Hammond 2014). Personal connections also are critical for advancing diversity, equity, and inclusion in the classroom. First-generation college students and historically underrepresented students are especially likely to feel like they do not belong in college, and they are more likely to question their own ability to be successful (Choy 2001; Pascarella et al. 2004). However, with a supportive social network, students gain confidence and become more comfortable asking for help (Frenzel, Pekrun, and Goetz 2007; Hammond 2014). Moreover, familiarity with peers in a classroom helps students to develop good study habits, navigate educational systems, and reinforce course content (Hammond 2014; Rosenfeld, Richman, and Bowen 2000). Thus, it has an important role in addressing the challenges that these students face (Kebritchi, Lipschuetz, and Santiago 2017; Mansbach and Austin 2018).

Student connections and community must be fostered intentionally in remote courses (McMurtie 2020). McInnerney and

Roberts (2004) suggested that this is best accomplished by prioritizing social interactions among students in addition to disseminating content, providing informal periods in which students can warm up to one another, and ensuring that they have synchronous interactions (e.g., live chats) as well as asynchronous discussion boards (McInnerney and Roberts 2004). During the pandemic, many instructors responded with a wide range of practical steps (McMurtie 2020). Our study contributes experimental evidence about which strategies might be most effective.

#### RESEARCH DESIGN

We conducted our experiment in a large introductory course in Fall 2020 ("Introduction to American Politics") and in Spring 2021 ("Introduction to Comparative Politics").<sup>1</sup> In both courses, the lectures were delivered remotely and most of the recitation sections also were remote. Because remote coursework was the only option, our experiment was not hampered by the selection bias often found in research on remote learning. Our results reflect the experiences of a broader undergraduate population, not only those students who would self-select into online courses. Our experiment took place with students who were more representative of those we typically would see in a large introductory course at a large state flagship university.

Remote pandemic teaching included students who otherwise would not have taken remote courses, and there may be something unique about these students. However, we do not have any basis on which to speculate that they would be more or less engaged with one another in the classroom. Furthermore, the treatment effect should or should not be influential regardless of the type of student. The advantage of conducting this experiment with a more representative group of students would reassure us only of the generalizability of our findings.

One important limitation to our findings, however, is that students who chose to do any type of extra-credit work—which did not necessarily include our experiment—had a higher average grade in the course (before extra credit) by 11 points. Students who did not submit any extra-credit work had an average grade of 75; those who did had an average grade of 86 before any extra-credit work was added.

The experiment followed five steps: students (1) volunteered to participate in study groups in exchange for extra credit; (2) completed a pre-survey; (3) were randomly assigned to study groups; (4) completed a post-survey; and (5) participated in focus groups about their experiences.

Our pre-survey asked students about their access to technology and space to complete remote coursework as well as their preferences for learning in person versus online. We inquired about their experiences with remote learning so far, including successes and challenges, how well they felt they could pay attention, their comfort level in asking questions, and how connected they felt to other students in the class.<sup>2</sup>

**Table 1**  
**Experimental Groups**

Semester	Group Type	Deliverable
Fall 2020	TA-Organized Zoom	Study Guide (for all groups)
	Student-Organized Zoom	
	Slack	
	Discussion Boards	
	Buddy	
Spring 2021	Student-Organized Zoom	None
	Student-Organized Zoom	Study Guide
	Student-Organized Zoom	Game
	Email	None
	Email	Study Guide
	Email	Game

Following the pre-survey, we randomly assigned students to groups and instructed them to study together for an exam (table 1). Our goal was to see which modality produced the best connection among students as well as to what extent the deliverable impacted their experience.

Students completed a post-experiment survey about their experience. We asked whether they thought they were more prepared for the exam, what their level of comfort was in the groups, if they got along, and whether the workload seemed fair. Students also described the benefits and challenges of working in the study group and whether it helped them to feel more connected to their peers. We conducted focus groups with open-ended questions so that we could delve deeper into their experiences.

Finally, to have a sense of whether other students felt similarly to those in our experiment, we conducted a campus-wide survey in which we asked questions about connections and remote learning. The data from the survey reiterated many of our findings—although with only 167 respondents, it was not a representative sample.

**RESULTS: STUDENT EXPERIENCES WITH DIFFERENT INTERVENTIONS**

Our findings discussed in this section offer a hopeful path forward. Relatively easy interventions by instructors have the potential to significantly improve students’ connections with one another.

**Experiences with Remote Learning**

Students found it more challenging to pay attention and were more anxious about remote coursework compared to in-person classes. Pre-survey responses showed that these sentiments were widespread. In the fall and spring semesters, 95% (n = 192) and 85% (n = 53), respectively, agreed or somewhat agreed that paying attention in remote classes was more challenging. A majority of students (78%, n = 157, in the fall and 71%, n = 44, in the spring) agreed or somewhat agreed that remote courses made them feel more anxious. Students were more anxious about asking questions online. In the fall and the spring, 62% (n = 124) and 60% (n =

**Table 2**  
**“I Feel Less Connected to My Classmates in Remote and/or Online Courses”**

	Fall 2020	Spring 2021
Agree	77%	81%
Somewhat Agree	17%	10%
Somewhat Disagree	2%	0%
Disagree	2%	3%
Hard to Say	3%	6%
Number of Observations	200	62

37), respectively, agreed that asking questions in a remote format made them more anxious.

**Connection in a Remote Setting**

As we expected based on the literature (Kebritchi, Lipschuetz, and Santiago 2017; McInnerney and Roberts 2004), students felt disconnected from their classmates when they were online (table 2). In the fall, 94% (n = 188) of students agreed or somewhat agreed that they felt less connected to their classmates in remote coursework. Despite additional training for instructors between Fall 2020 and Spring 2021, 91% (n = 56) of students still felt disconnected from others in the spring semester. For some, the online modality drove this disconnection. One student noted, “No one really knows us because we are not in person” (Nov19.8.B). Another stated, “With the class being this big and online, you lose that connection [of] being in person” (Nov16.1.C).

For most students, being in a group facilitated connections regardless of group assignment. In the fall, 70% (n = 92) and in the spring, 92% (n = 36) of participants agreed that being in a group helped them to feel more connected to their peers.

Focus-group comments reinforced this finding. Several students noted that these study groups were their best opportunity to connect. One student stated, “I am taking classes at home right now and I don’t know anyone....It allowed me to reach out to those people [in my group] and now I have people I can talk to in the class” (Nov16.6.H). One student who felt impacted by the experiment reported that she and her group texted before the exam to wish one another good luck. Results from our campus-wide survey support the findings of our experiment. In that survey, 86% (n = 143) of respondents reported that working in groups made them feel somewhat or very connected to their classmates.

The modality in which students engaged mattered for how connected they felt: students meeting on Zoom indicated that they felt more connected than those who communicated online (table 3). In the fall semester, 74% of participants in the student-led Zoom meeting agreed or somewhat agreed that participating in the group made them feel more connected, whereas 84% of students in the teacher assistant (TA)-led Zoom meeting felt more connected—a percentage that was statistically significant. Conversely, only 55% of students who participated on Slack and 69% of those who participated in a discussion board agreed or somewhat agreed that the experience fostered connections. Participating in a discussion board could be perceived as “normal,” particularly in a larger introductory course. Given the uncertainty during the

Table 3

**“Being in a Group Helped Me Feel Better Connected to Other Students in the Course (Fall 2020)”**

	Learning Modality				Discussion Board
	Buddy	Student Zoom	TAZoom	Slack	
Agree	31%	24%	50%	20%	42%
Somewhat Agree	31%	48%	34%	35%	27%
Somewhat Disagree	21%	12%	13%	10%	15%
Disagree	14%	8%	0%	30%	8%
Hard to Say	3%	8%	3%	5%	8%
Number of Observations	29	25	32	20	26

pandemic, something that felt “normal” might have been comforting and, therefore, resulted in feeling more connected. This may explain why we observed that more students felt connected when they were participating in a discussion board compared to those who participated in Slack, which may have required them to download and learn a new app.

These results, combined with student comments in our focus groups and the campus-wide survey, suggest that seeing the faces of their classmates is important for facilitating connectedness. In our campus-wide survey, 84% of students (n = 140) felt somewhat or very connected in Zoom breakout rooms, in which students typically turn on their cameras.

In our focus groups, one student noted that studying together was helpful but mostly “It was nice for me to see other people” (Nov18.8.C). Some students even noted that participating in the focus group made them feel more connected because of seeing and hearing their classmates. One student stated, “I was dreading this call but it was nice to hear that complete strangers are going through the same thing. I felt less alone” (Nov16.2.F). Zoom meetings also may have opened space for students to casually interact with one another. In the focus groups, one student fondly

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remembered the “small talk about skiing” (Nov16.5.A). In our campus-wide survey, 82% reported that playing content games in class made them feel most connected to their classmates. Time to relax, chat, or play is important for students, and it is challenging to replicate without being able to see and hear one another.

In our focus groups, students who participated in online communication groups sometimes reported a different experience. Although the literature suggests that synchronous interaction forges connections, our experiment revealed that seeing one another’s faces is important to students today. One student remarked that the experiment made no difference in his level of

connectedness “because we did this over email” (Nov16.1.C), noting that he would not be able to point out the group members in class. Another said, “It did not do anything to provide a connection because we were all typing in a google doc and could not see each other’s faces. There wasn’t room for engagement” (Nov16.2.A) Yet another expressed regret that they were not assigned a Zoom treatment: “Because we never met on Zoom or saw each other’s faces, I did not feel any [connection] at all. No face to a name” (Nov16.6.D). One student even admitted to forgoing the instructions and meeting on Zoom, a switch that made a significant difference. “We were doing an online group but we actually met on Zoom,” the student stated. “I feel like I created a group I can work with in the future” (April13.6.D).

In the post-survey and the focus groups, students provided suggestions on how to foster connections. Participants stated that repeated contact with group members would be one way, especially if the groups were based on recitation rosters. Students then could see one another more often.

Finally, our results suggest that instructors have a major role in how connected students feel. In all of the treatments, students felt most connected when the TA facilitated the Zoom meeting. In the focus groups, several students remarked that without an effective TA, they would have had a negative experience in the class; however, we did not ask this question directly. In our campus-wide survey, 86% of students (n = 144) felt very or somewhat connected when receiving a personalized email from their instructor. These results indicate that instructors can forge connections among students as well as between the instructor and students.

Our study’s generalizability is limited by the type of university and the type of students who did extra-credit work. We welcome research replicating this experiment in settings of smaller colleges and universities, including those in more rural areas and with more diverse demographics (the students at our university are predominantly white). Nonetheless, we consider it significant that the treatment effect appears to have had a positive effect for many of these students.

**SUGGESTIONS FOR ENCOURAGING CONNECTEDNESS IN REMOTE TEACHING**

Interventions do not mitigate feelings of disconnectedness for all students, but a majority benefit from interventions aimed to

connect them to one another. It is important to note that these interventions can help students to feel less lonely while learning online and likely will increase connections among classmates. Based on our research, we plan to incorporate the following strategies in our future courses that may be helpful to other instructors.

**Integrate Small-Group Work**

We suggest that instructors integrate low-stakes group work into courses. Group work allows students to get to know their peers in a more intimate setting, and it makes space for the small talk that



students in our experiment noted was important. Based on feedback from students about the significance of seeing the faces of their peers, we recommend that professors instruct groups to meet via video conferencing. Structuring the assignment such that

at predominantly white institutions, and students who are building self-esteem and good study habits. We owe it to our students to promote classrooms of all types—perhaps especially remote classrooms—that build connections among them.

*Student connection is vital for learning, especially for first-generation college students who are navigating new systems, students of color who are struggling with feelings of belonging at predominantly white institutions, and students who are building self-esteem and good study habits.*

groups meet repeatedly during the semester will allow connections to form organically. This suggestion aligns with results from our focus groups, in which many students suggested that if the experiment groups had met over time, they would have been more effective. Furthermore, a low-stakes assignment may reduce stress and allow students to get to know one another in a relaxed environment.

### Facilitate Student Groups

Despite being young adults, students may look to instructors to facilitate connections. In our experiment, students in the TA-led Zoom study group were significantly more likely to feel connected than those in any other treatment group (see appendix A). Although it can be time consuming, it may be worthwhile for instructors to facilitate the first meeting for student groups by helping them to negotiate a meeting time, assisting with setting up Zoom meetings, and teaching them how to set group goals and navigate conflict. This may help students to develop interpersonal skills as well as demonstrate the instructor's commitment to forging a positive environment.

### Prioritize Recitation

Although not officially part of the experiment, many students in the focus groups noted the importance of their recitation section. For some, recitation was the only time outside of this experiment that they engaged with other students in the class. Therefore, we suggest that instructors prioritize these classes and send implicit and explicit messages about their importance. Course grading, attendance policies, and verbal affirmations of the benefits of recitation can encourage students to take full advantage of this smaller group environment.

### Make Contact with Students

Finally, we suggest that instructors and TAs contact students during the semester. In our focus groups, several students appreciated TAs who made an effort to connect with them. Moreover, our campus-wide survey indicated that students felt most connected to a course when they received a personal email from their instructor. Instructors and TAs might choose to meet with students in small groups over Zoom or during office hours. Some instructors may opt to cancel a single class period to hold these meetings, which may open the door for students to engage when they otherwise might not.

Student connection is vital for learning, especially for first-generation college students who are navigating new systems, students of color who are struggling with feelings of belonging

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### SUPPLEMENTARY MATERIALS

To view supplementary material for this article, please visit <http://doi.org/10.1017/S1049096523000070>.

### DATA AVAILABILITY STATEMENT

Research documentation and data that support the findings of this study are openly available at the *PS: Political Science & Politics* Harvard Dataverse at <https://doi.org/10.7910/DVN/P5XXSH>.

### CONFLICTS OF INTEREST

The authors declare that there are no ethical issues or conflicts of interest in this research. ■

### NOTES

1. This research was approved by our university's Institutional Review Board, Protocol #20-0362 entitled, "Improving Undergrad Remote & Online Learning."
2. See the online appendices for our pre-survey, post-survey, and focus-group questions. Descriptive statistics and our regression table also are in the appendices.

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