

Student Perceptions of Social Support in the Transition to Emergency Remote Instruction

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ABSTRACT

University courses around the world suddenly transitioned to emergency remote instruction in response to the COVID-19 pandemic. We study changes in students' experience of support from their instructors and peers in large lecture courses. Social support can act as an important resource for students and buffer against mental distress. We find that students experienced more support from instructors but less support from their peers after the transition to remote instruction. Remote learning was less active and involved fewer peer interactions, with synchronous classes resembling online office hours and students struggling to get help. Our findings suggest the need for additional resources to help students stay connected and facilitate collaboration online.

Author Keywords

Remote instruction; COVID 19 pandemic; Mixed-methods; Interview; Survey; Learning gains

CCS Concepts

•Applied computing → *E-learning*; •Social and professional topics → *User characteristics*;

INTRODUCTION

Social support has been found to act as a protective factor for mental health against the negative impacts of the pandemic [7, 8]. People who had a high level of social support from friends or family members were less likely to experience psychological problems from social isolation during the pandemic [7]. For college students, Ye and colleagues [8] found that the more social support they received, the lower their chance of suffering from acute stress disorder after going

through COVID-related experiences, such as disruptions to study or work.

College students have faced a unique challenge of pursuing academic studies during the pandemic. As most universities in the US closed their campuses and abruptly transitioned to remote learning due to the pandemic, students lost their typical academic routine. During the transition, they had to find new ways of seeking academic help [4]. Students lost or had limited access to physical resources like labs and group study rooms in libraries. Virtual instruction changed their ability to ask quick questions in class. Students and faculty alike had to navigate the challenges of learning new technologies in the classroom in a short period of time [5, 3].

How college students have perceived their social support in the academic setting has received little attention. While prior studies examined social support as it relates to mental health, this study investigates perceived social support as an extension of academic support. Specifically, we focused on students' perceptions of support from peers and instructors in the courses they were taking during spring 2020 as courses transitioned to emergency remote instruction. We address the following research question: How did students' experience of support from their instructors and peers change with the transition to remote learning?

This study shares our findings of students' needs for social support in remote learning. We answer the research question by adopting a mixed-method of analyzing both student survey data and interviews. This method enables us to examine social support with rich data from different angles. The findings provide insights into designing interventions to improve student learning experiences online.

METHODS

Context and Data Collection

We study how students perceived support from peers and instructors since the COVID-19 pandemic brought a shift from in-person to emergency remote instruction in Spring 2020. We leverage student survey data collected before and after the instructional shift from an ongoing, longitudinal university-wide

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project that fosters active learning in large lecture courses. This survey data enables us to compare students' perceived support between in-person and between classroom settings. We also present findings from student interviews conducted at the end of the semester. The student interview provides richer information about how students perceived support from peers and instructors.

Data was collected from five social computing courses at a large university in the US. The course subjects covered social impacts of technology, data science, web programming, web applications, and natural language processing. They were introductory to intermediate level courses that had in-class activities and discussions, and at least one group project as a homework assignment.

The first half of the semester was in-person, while the second half was remote due to the pandemic. During the second half, courses offered synchronous lectures on Zoom at regular class time, except for one course that only provided pre-recorded lectures. Synchronous lecture recordings were also made available for students, but some original class times were replaced with online office hours via Zoom.

Student survey data was collected three times during the semester, at the beginning (pre-survey), in the middle (mid-survey), and at the end of the semester (post-survey). The mid-survey was distributed when the university transitioned from in-person to remote instruction. After the mid-survey, a sample of students in the five courses was invited to an interview. A total of 878 students who completed both pre-survey and post-survey, out of 1,342 students enrolled in the five courses. Thirty-eight students participated in interviews. Student characteristics for the student survey and the interview can be found in Table 1.

Table 1. Student characteristics for the student survey and the interview participants. The surveyed column shows students who completed both pre and post surveys. URM refers to underrepresented minority.

	Enrolled	Surveyed	Interviewed
Female	704 (52%)	501 (57%)	19 (50%)
First-gen.	167 (14%)	109 (12%)	3 (8%)
URM	99 (7%)	46 (5%)	5 (13%)
Total	1,342	878	38

Measures

Social Support Survey Measure

We adapted items from a validated social support measure [2] (items shown in Table 2). Students rated each item on a six-point scale: Strongly agree (3), Agree (2), Somewhat agree (1), Neither agree nor disagree (0), Somewhat disagree (-1), Disagree (-2), Strongly disagree (-3). Item reliability for the pre-survey and the post-survey were high (Cronbach's α : 0.84 pre and 0.84 post).

Table 2. Survey items on the social support scale. Items about "sections" were not asked in courses that did not have sections. Item 6 is reverse coded.

Survey items on the social support scale
I tend to have a good relationship with my lecturers
I tend to have a good relationship with my section leaders
There tends to be a pleasant atmosphere in lectures
There tends to be a pleasant atmosphere in sections
Group cohesion usually occurs among students in my section
There are often conflicts and arguments in my courses with other students
I usually get along well with my peers in my courses
I feel comfortable sharing my ideas with my peers

Semi-structured Interviews

We developed a semi-structured interview protocol to probe students' learning experiences in in-person and remote instruction settings and salient learning moments. In this protocol, we specifically focused on asking about students' perspectives of their overall learning experience, as well as their experiences with the transition to remote learning, and their sense of belonging while they are in the courses. Two interview questions that were most useful to answer our research question were, "Do you feel a sense of peer support?", and "In what ways could instructors be more supportive to help you learn at this time?".

Data Analysis

Survey on Social Support

We conducted paired-sample t-tests to compare students' perceived social support reported on the pre-survey and post-survey. We only included students who completed both surveys the data analysis ($N=878$). We also conducted a supplementary analysis with a linear mixed-effects model to see if a different level of social support was perceived by student characteristics. We regressed students' rating of social support on instructional mode at the time of reporting (in-person and remote), cumulative grade point average (GPA), whether the student is a first-generation college whether the student is female, whether the student is a URM (Black, Hispanic, Pacific Islander, or Native Americans), with courses as a fixed effect.

Interview Coding

We analyzed interview data using the constant comparative method in which two coders read through all the interview transcriptions and identify patterns across all responses [1, 6].

Through our coders' analysis, we generated a total of 95 codes. We then clustered related codes into categories, of which there were 36. We clustered categories into 8 themes of the overall coding scheme, each representing an overarching trend in the data: Background Information, Preference of Learning New Topics, Salient Moments, Instructor Factors, Academic Factors, Social Factors, Remote Learning Experience, and Additional.

We focused on two themes that are most relevant to our research question: Remote Learning Experience and Instructor Factors. Specifically, we attended to one code in Remote Learning Experience and two codes in Instructor Factors. Table 3 provides the total number of interview participants who

Table 3. Most common codes for themes related to social support in the interview coding scheme. The +/- indicates if a code is positive or negative for students' experience.

Interview code	# Participants (instances)
<i>Theme: Instructor factors</i>	
Supportive/approachable instructor (+)	27 (68)
Caring instructor (+)	18 (26)
<i>Theme: Peer support</i>	
Less peer support (-)	32 (60)

were associated with codes related to social support and the total number of instances of each code.

RESULTS

Student Experiences of Support

We address our research question about how students experienced support from instructors and peers using survey and interview data. We start by examining how much social support students think they received at the beginning of the course compared to at the end of the semester. Then, we highlight qualitative findings of students' learning experiences and the types of social support they received from instructors and peers.

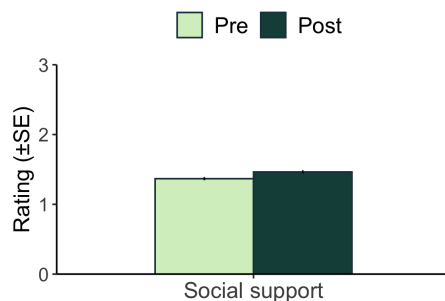


Figure 1. Students' ratings of social support they received across the five courses. All courses were offered in-person when students participated in the pre-survey, while the courses were remote when they completed the post-survey.

We find a significant increase in students' sense of social support ($t_{877} = 2.88, p = 0.004, 95\% \text{ CI } [0.02, 0.13]$). Moreover, the mean response values were all positive between 1 and 2 on a scale ranging from -3 to +3 (Pre-survey: $M = 1.39, SD = 0.74$; Post-survey: $M = 1.47, SD = 0.76$). Figure 1 illustrates students' perceived social support. We found no significant difference in perceived social support based on student characteristics (remote instruction: $b = 0.08, t_{1357.78} = 3.39, p = 0.0007$; isFemale: $b = -0.04, t_{827.84} = -0.81, p = 0.42$; isURM: $b = 0.02, t_{870.86} = 0.21, p = 0.84$; isFirstGen: $b = -0.03, t_{821.57} = -0.56, p = 0.61$; cumulative GPA: $b = 0.10, t_{846.82} = 1.69, p = 0.09$). Thus, students consistently felt supported by instructors, teaching assistants, and peers after transitioning to remote instruction.

Students' personal accounts of instructor support during the semester reiterate and extend our survey findings. Students having supportive and approachable instructors was a frequently brought-up theme (68 instances, 27 participants).

However, we do see a difference in survey and interview data when it comes to peer support. Many interview participants described having less peer support (60 instances, 32 participants), in contrast to our survey findings. We share several student accounts of their sense of instructor and peer support to explore these observations.

During the shift from in-person instruction to remote learning, many students felt a great sense of support from their instructors. In a time where many students had concerns about family, travel, and coursework, professors facilitated an especially caring environment. One participant described,

"Mostly, I feel the instructors I had were very accommodating and they were very available and very understanding. ... I think this transition they've really done a good job of making the students feel that they care and be as helpful as possible." (P9, F, Asian, Year 4)

In addition to their understanding and support during the transition to online learning, professors provided opportunities for students to voice their concerns and ask questions about the upcoming transition. One professor dedicated an entire lecture period to a Q & A session in which students felt heard and understood. One student recounts such an instance:

"The professor decided to cancel lecture, but have everyone come in anyway to talk about what they wanted to do about this whole online thing. And that made me really happy just because I was able to talk about like some of my own concerns, because actually it was like timing and time concerns about other people. As well as, and it really made me feel like I was listened to." (P26, M, Hispanic, Year 2)

Along with course instructors, students cited their teaching assistants as also contributing to a friendly and supportive environment after courses transitioned to remote instruction. Many courses held extensive remote office hours in which students could have one-on-one time with teaching assistants in order to get help with assignments and course concepts. One student describes their experience in office hours.

"And then the office hours throughout quarantine, it also just felt very welcoming. It's kind of it's completely ... It's much different than being able to go to office hours in person. But every time I went to the Zoom links, the TAs were always super helpful. And they would just talk to you too. It wasn't always just about the work. It was really nice." (P38, M, White, Year 2)

In contrast to the abundance of support that students received from their professors, many students cited a decrease in peer support during the remote learning period. Peer support decreased in three main ways: less socialization, less peer-to-peer assignment assistance, and greater difficulty in completing group work. Many students missed casual conversations with their peers in lectures and discussion sections. One student describes their social situation after discussion sections moved online:

"I think there was a lack of peer support just because the people I would sit with in class or sit with in section, I

wasn't really close enough to be calling them now during this period. So I felt isolated and it was trying to do all the work by myself and getting talking to my TA. I didn't feel we had as much peer support as before, which was sad, but made it through.” (P22, F, Asian, Year 2)

The student quoted above felt a sense of isolation and sadness due to the lack of opportunities to interact with students with whom she was familiar, but not enough to reach out after the transition to remote learning. Student's sense of isolation was seen not only through reduced casual interactions between peers but in their ability to rely on one another for assistance while completing assignments. One student recounts their experience:

“Before, or during face-to-face learning, I guess just working on the problem sets or getting to help other people working on the problem sets, was a great way for me to learn. And that's something that ended up not carrying into virtual learning because there would have been no way for me to sit with someone and work on a problem set together” (P7, F, Asian, Masters Student)

The shift to remote learning also impacted student's ability to collaborate effectively on group projects. Many students found computer-mediated communication to be more difficult than in-person interaction when it came to completing collaborative assignments. Students cited difficulties in holding each other accountable to complete work, struggles coordinating time zone differences, and overall difficulty communicating about assignments. One student described their experience with group work:

“It's hard to give everybody a fair share of the work when each of us has a lot of like separate stuff going on and we're not... because we don't have in-person communication, it's harder to communicate in general.” (P11, M, Multicultural, Year 4)

DISCUSSION

The student survey indicates that students felt supported overall after the emergency transition to remote instruction. We did not find any significant socio-demographic differences in this trend: female students, first-generation students, and URM students did appear to have received more or less social support in this case study. Using the student interviews, we further understood how students view support they received from instructors, teaching staff, and peers. Students appreciated caring messages from instructors and teaching assistants on both academic and personal matters. However, students felt isolated from peers in remote learning. They had fewer opportunities to discuss homework assignments with peers. The difficulty of interacting with peers on class projects and other group work was amplified since the five courses had group projects in their curriculum.

Our findings suggest that instructors and teaching staff should continue providing help and build a supportive environment for students to feel less stressed. Even though the help is not necessarily academic in nature, any thoughtful actions of instructions such as just listening to students' personal difficulties to stay on track in the course could help ease students'

stress and could support students in achieving their academic goals. This type of support should not overburden instructors and teaching staff and be backed up with institutional support like counseling and psychological services.

Most importantly, our findings suggest the need for facilitating peer interaction to ensure that the usual peer support mechanisms are not lost online. Students not only felt isolated but also lost opportunities of learning from peers after the shift to remote learning. Additional aids and norm settings should be provided to improve collaborative learning between students in computer-mediated learning environments.

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