

**Report on Instructor and Student Surveys
Conducted After CMU's Transition to Remote Instruction
Spring 2020**

Table of Contents [with clickable links]

Executive Summary	2
Background Information on the Surveys	3
Tips for Engaging with the Survey Results	4
Report Structure	4
Survey Respondents and the Courses They Focused On	5
Instructional Strategies	11
Results on Instructional Strategies Applicable in General & for Lecture-Based Courses	12
Results on Instructional Strategies for Non-Lecture-Based Course Formats	15
Student and Instructor Challenges	16
Sense of Community and Support	20

Executive Summary

In April 2020 amidst the COVID-10 pandemic, surveys were administered to all CMU instructors and students to gather data on their experiences with remote teaching and learning so that the results could inform future teaching and course design, especially for remote and hybrid modes of instruction.

The response rate for both surveys was strong (62% for instructors and 35% for students), and both instructor and student respondents were generally representative of the corresponding populations.

Results indicated several patterns regarding what instructional strategies were perceived to be helpful for learning, what challenges instructors and students faced (and how to mitigate them), and how instructors' and students' sense of belonging and connection were impacted (and addressed). For example, some key results include:

- Students have preferences for live class sessions and more frequent, low-stakes assignments, and in both cases their rationales relate to the opportunities for feedback and interaction.
- In general, having class discussions, assigning group work, and student participation were perceived as more challenging/less helpful. However, these general trends did not apply to all course formats (e.g., not to seminar, studio, or project-based courses).
- As would be expected, students and instructors faced various challenges. Most notably, students rated distractions from personal electronics and feeling overwhelmed by the pandemic as the most challenging.
- Most instructors did not report significant challenges from technology issues.
- Both student and instructor responses suggest it was challenging to maintain a strong sense of community and connection in their courses. At the same time, students cited several strategies they experienced as beneficial for creating a positive remote experience.

While these results must be interpreted carefully and with context in mind, they generally align well with robust findings from learning science research.

Readers who wish to quickly glean key takeaways (e.g., *What did we find? What does it mean?* and *What can instructors do?*) are encouraged to read the summary boxes (outlined in red) on pages [11](#), [16](#), and [20](#).

CMU instructors who wish to consult with an Eberly Center colleague regarding how to apply these results to your own course(s) are encouraged to email eberly-assist@andrew.cmu.edu. We are here to help!

Background Information on the Surveys

- Purpose: After CMU's March 2020 transition to remote instruction in response to the Covid-19 pandemic, we sought to gather data on instructor and student experiences. The main purpose of the surveys was to gather data that could inform instructors' future online teaching and course design.
- Survey Development:
 - CMU's Eberly Center for Teaching Excellence and Educational Innovation and CMU's Office of Institutional Research and Analysis collaborated to design and administer two surveys: one to instructors teaching in the Spring semester or mini 4 (across all CMU locations) and one to students (both undergraduates and graduates, across all CMU locations).
 - Overall survey themes and specific survey items were generated and refined based on input from CMU college/school-level representatives (namely, Associate Deans from each school/college), educational databases, and education listservs.
 - Several iterative cycles of refinement included feedback from pilot testing the surveys with faculty, undergraduate students, and graduate students.
- Administration:
 - The surveys were administered during the last week of April and the first week of May, 2020 to all CMU instructors and students .
 - Instructor Survey: 928 instructors (62% response rate)
 - Student Survey: 4,602 students (35% response rate)

Tips for Engaging with the Survey Results

We acknowledge that responding to these survey results and implementing related recommendations into your course may be time-consuming or challenging. The Eberly Center is available to assist you in making adjustments to your course! Please contact the Eberly Center at eberly-assist@andrew.cmu.edu.

Also, please bear in mind these considerations when engaging with the results:

- These results reflect instructors' and students' experiences after CMU courses were quickly translated to remote learning halfway into the semester. This particular context may be different from future encounters with (more deliberately designed) online instruction.
- Various results describe respondents' perceptions of what worked well for student learning. Although we recognize that such perceptions are not the same as direct measures of effectiveness, we believe that students' and instructors' perceptions and experiences are factors to consider in course design, especially when they align with what learning science research shows is truly effective.
- Some results may or may not resonate with your personal experience. Individual experiences may not match broader trends.
- For many of the survey questions, instructors and students were encouraged to think about one specific course, to produce more interpretable results.

Report Structure

- The rest of this report consists of four sections:
 - [Survey Respondents and the Courses They Focused On](#)
 - [Instructional Strategies](#)
 - [Student and Instructor Challenges](#)
 - [Sense of Community and Support](#)
- Each section contains:
 - A summary box (outlined in red) describing
 - *What did we find?* ...the overall results and takeaways
 - *What does this mean?* ...interpretations of the results in light of educational research, and
 - *What can instructors do?* ...suggestions of next steps for instructors.
 - Detailed, relevant results for that section from the student and instructor surveys.

Survey Respondents and the Courses They Focused On

What did we find?:

- Overall response rates were solid: 62% for instructors; 35% for students.
- The sample of both instructor and students respondents appears to be generally representative of the CMU community based on several demographic variables.
 - For instructors, response rates by college and by sex hovered around 62%.
 - For students, response rates by college, sex, race, international status, and class year hovered around 35%, with seniors, fifth-years, and doctoral students somewhat lower.
- The majority of students and instructors chose to reflect on a lecture-based course while answering a particular subset of questions in the survey.
 - Most of the remaining students and instructors focused on a seminar, studio, or project-based courses.

Overall Instructor Response Rate = 62%

Instructor's Primary School/College	Population Count	Number of Responses	Response Rate by Primary School/College
CFA	301	177	59%
CIT	223	117	53%
DC	258	188	73%
HNZ	95	57	60%
MCS	143	94	66%
SCS	260	137	53%
TPR	86	56	65%
Other	144	102	71%

Instructor's Sex*	Population Count	Number of Responses	Response Rate by Gender
Female	501	337	67%
Male	1,009	591	59%

*Sex is reported here based on the demographic variable received.

Overall Student Response Rate = 35%

Student's Primary School/College	Population Count	Number of Responses	Response Rate by Primary School/College
CFA	1,250	358	29%
CIT	3,509	1,532	44%
DC	1,641	525	32%
HNZ	964	399	41%
MCS	1,103	422	38%
SCS	2,116	603	29%
TPR	1,194	333	28%
Other	1083	375	35%

Student's Sex*	Population Count	Number of Responses	Response Rate by Gender
Female	5,710	2,294	40%
Male	7,510	2,253	32%

*Sex is reported here based on demographic variable received.

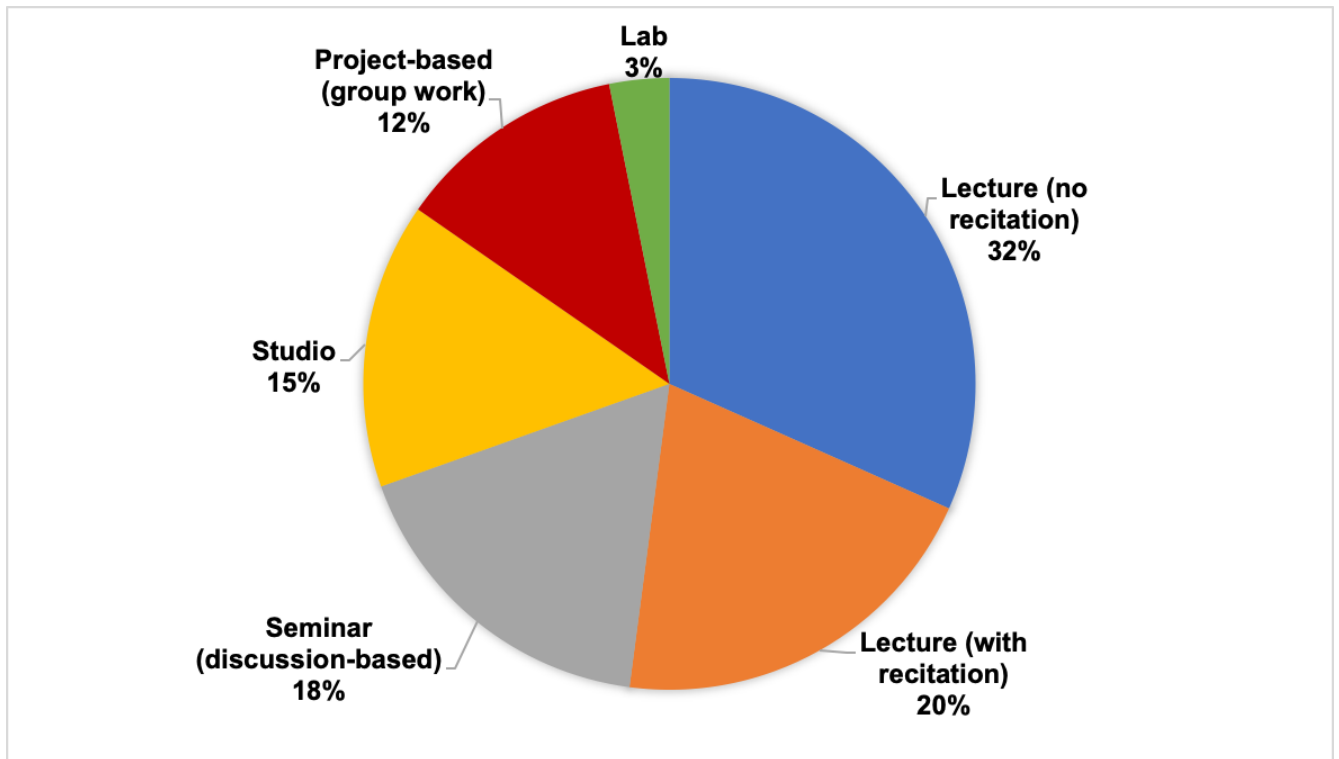
Student's Race	Population Count	Number of Responses	Response Rate by Race
Asian only	2,532	828	33%
Black only	364	110	30%
White only	2,883	1,110	39%
Hispanic only	157	60	38%
Native American only	3	3	100%
Pacific Islander only	4	1	25%
Multiracial (majority)	222	88	40%
Multiracial (minority)	635	227	36%
Race not reported	704	231	33%

Student's International Status	Population Count	Number of Responses	Response Rate by International Status
International	5,356	1,889	35%

Student's Class Year	Population Count	Number of Responses	Response Rate by Class Year
First year	1,701	792	47%
Sophomore	1,654	665	40%
Junior	1,714	601	35%
Senior	1,455	361	25%
Fifth year	129	22	17%
Master's	4,279	1,648	39%
Doctoral	1,928	458	24%

Instructor Survey

Q: Which BEST describes the primary format of that one course [that you focused on for this part of the survey] BEFORE CMU transitioned to online teaching? (i.e., What did you spend the most time doing?)

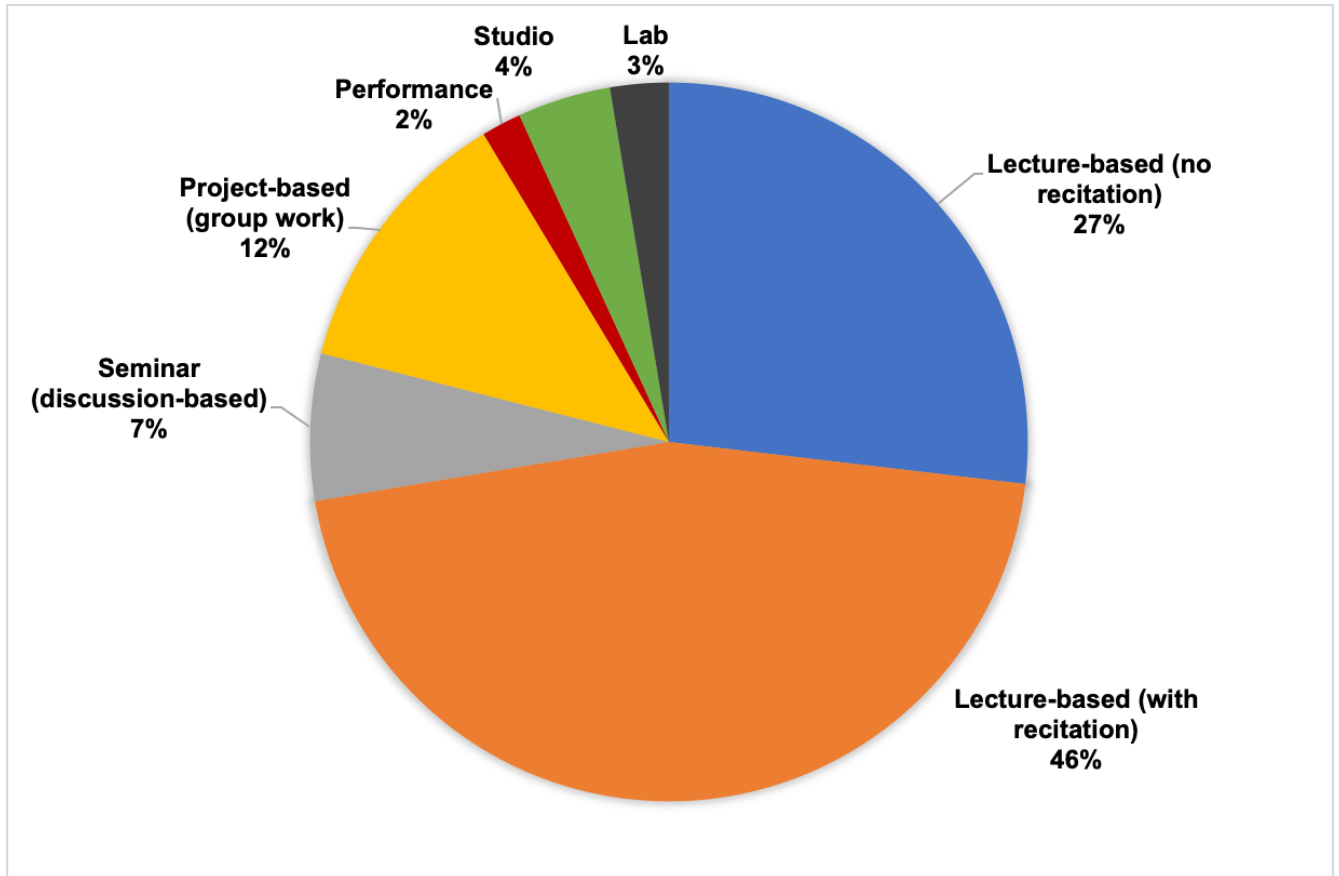


Q: Was this course already taught in a 100% online format before the CMU transition to online learning?

- No - 96.9% of instructor respondents
- Yes - 3.1% of instructor respondents

Student Survey

Q: Before transitioning to online learning, which BEST describes the primary format of the course that you chose [to focus on for this part of the survey] (i.e., what did you spend the MOST time doing in that course)?



Q: How does the effectiveness of the course you selected [to focus on for this part of the survey] compare to the other courses that you are taking? The course I selected was...

Effectiveness of Course	Number of Students	Percent of Students
The least effective	259	7.67%
Less effective than most	461	13.65%
Average	1527	45.22%
More effective than most	801	23.72%
The most effective	329	9.74%
Total	3377	100.00%

Instructional Strategies

What did we find?:

- Approximately 3,500 students reflected on a specific course and then rated a series of instructional strategies from “very helpful” to “not at all helpful”. On average, across all seven types of course formats upon which students reflected:
 - Recordings of lectures, live Zoom class sessions, and low stakes assignments were considered very helpful by the most respondents.
- High stakes assignments, live small-group or class discussions, and collaborative assignments had the lowest percentage of respondents rating them as very helpful.
 - For a few course formats, student and instructor ratings of the helpfulness of teaching strategies varied from the general trends: In Seminar, Performance, and Studio course formats, class-wide discussions were consistently rated as one of the top two most helpful teaching strategies.
- Approximately 60% of instructors responding to the question indicated that the most effective Zoom features for engaging students during synchronous learning were the Zoom chat feature, breakout rooms, and screen sharing.

What does this mean?

- Students have preferences for live class sessions and more frequent, low-stakes assignments, and in both cases their rationales cited opportunities for feedback. This aligns well with what learning science has shown to be effective for learning.
- Having class discussions and assigning group work may only be perceived as helpful in certain contexts, (e.g., in smaller classes where these strategies are easier to implement). Learning science has shown peer learning and group work are effective *when explicitly supported and carefully structured, in courses of any size*. Together, these results suggest that collaborative learning strategies require careful implementation, especially in lecture-based course formats.

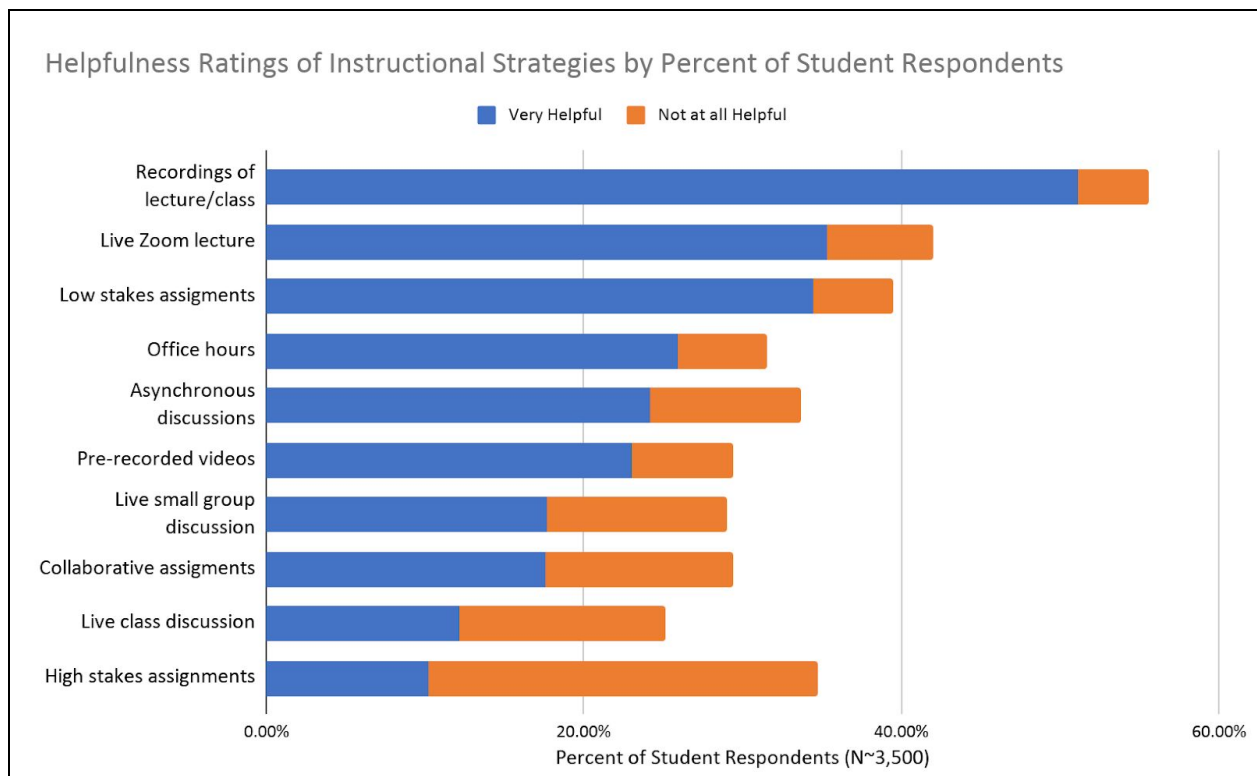
What can instructors do?

- Incorporate these positively perceived, research-supported strategies in your teaching:
 - [Implementing active learning during or between class sessions](#)
 - [Strategically incorporating low stakes assignments](#)
- Contact an Eberly colleague (eberly-assist@andrew.cmu.edu) to discuss how best to implement collaborative learning strategies (e.g., group work) in your course context.

Results on Instructional Strategies Applicable in General & for Lecture-Based Courses

The results in this subsection are based on the full dataset, i.e., aggregated across all course formats. These aggregated results are mostly strongly influenced by responses that focused on lecture-based courses (because lecture-based courses, being larger, naturally had the most responses). Where results for other course formats differed from the general trends, those deviations for specific non-lecture-based course formats are presented in [the sub-section below](#).

Student Q: Since the online transition, how helpful have the following instructional methods been in supporting your learning in the course you selected? *The data below are aggregated across all seven course formats upon which students reflected. For clarity, the response options “a little bit helpful”, “somewhat helpful”, and “N/A” are not included below.*



Student Q: For the instructional strategy you found most helpful, why was it effective for your learning? Why were the instructional strategies you rated as most effective helpful for your learning? Over 1,700 students answered this question with one particular course in mind. We analyzed responses from a random sample of 500 of those students who answered for one of the three instructional strategies rated as most helpful overall. Below, we thematically summarize these students' rationales for why the three highest rated instructional strategies were most helpful for their learning.

Live Zoom Lecture

- **Normalcy** - It was most similar to what was done before the transition.
- **Feedback** - Students appreciated being able to ask questions in real time and receive immediate answers.
- **Engagement** - Students felt more comfortable and/or motivated to engage during class.

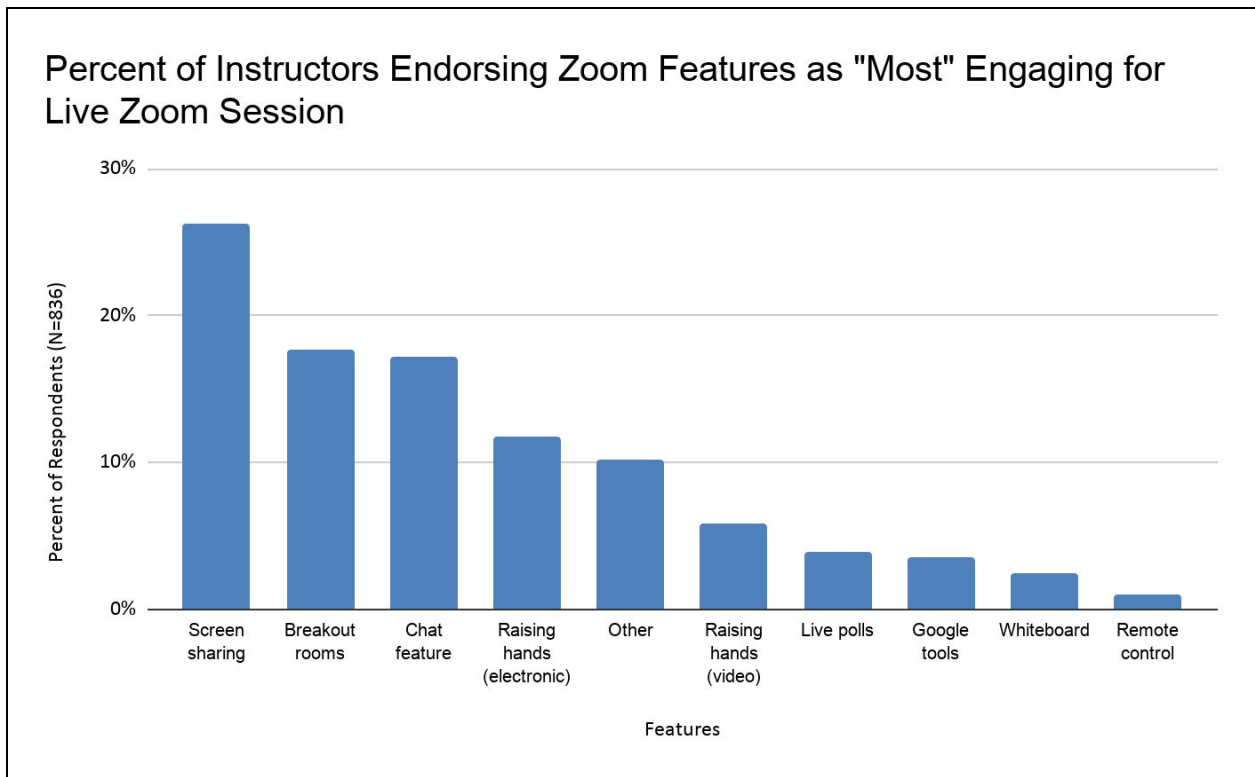
Recordings of lecture/class:

- **Review** - Students found it useful to be able to rewind and to revisit information later.
- **Access at any time** - Students appreciated the flexibility of being able to access the lectures on their own schedule instead of at a specific time. This was particularly helpful for students in different time zones.
- **Self-pace** - Students valued being able to pause videos and adjust speed of information (faster or slower) depending on their needs, including students for whom English is a second language.

Low stakes assignments:

- **Reduces stress** - Students indicated that the low stakes assignments reduce stress for a variety of reasons, including: reducing overall workload, reducing the weight of each assignment on their overall grade.
- **Application of concepts** - Students appreciated the opportunity to practice concepts and to receive feedback.
- **Highlights important concepts** - Students were able to identify what is important based on what is covered in the assignment. It indicated what students should study or reexamine if they are confused.

Instructor Q: Since the transition to online instruction in your course, which of the following was MOST effective for actively engaging students during live zoom sessions?



Results on Instructional Strategies for Non-Lecture-Based Course Formats

Below, for each type of course format where results on instructional strategies varied from the aggregated data, we summarize the deviations and students' explanations for why the instructional strategy was helpful.

Seminar (discussion-based) courses: In addition to live Zoom sessions, students in seminar/discussion-based courses indicated that they found **live class-wide discussions** to be one of the two most helpful strategies for the following reasons:

1. **Normalcy** - It was most similar to what was done before the transition.
2. **Engagement** - Students felt more comfortable and/or motivated to engage during class.
3. **Peer Learning** - Students felt they learned from hearing from other students, instead of only hearing from the instructor.

Performance courses: In addition to Live zoom sessions, students in performance courses indicated that they found **live class-wide discussions** to be one of the most helpful instructional strategies for the following reasons:

1. **Normalcy** - It was most similar to what was done before the transition.
2. **Feedback** - Students appreciated being able to ask questions in real time and receive immediate answers.
3. **Engagement** - Students felt more comfortable and/or motivated to engage during class.

Studio: Students in studio courses indicated that they found **live small group discussions and office hours** to be one of the most helpful instructional strategies for the following reasons:

1. **Engagement** - Students felt more comfortable and/or motivated to engage during class.
2. **Instructor Interaction** - Students appreciate being able to interact with the instructor in real time, especially during office hours.
3. **Peer Learning** - Students felt they learned from hearing other student's opinions, instead of hearing from the instructor only.

Student and Instructor Challenges

What did we find?:

- Students rated the impact of various barriers to engaging fully with their courses during the remote portion of the Spring 2020 semester.
 - The most negatively impactful barriers were distractions from personal electronics and feeling overwhelmed by the pandemic.
- Similarly, instructors rated various pedagogical and personal challenges in their experiences transitioning to remote instruction.
 - Instructors indicated that “facilitating class discussions” and “student participation” were among the top challenges.
- Most instructors did not report significant challenges from technology issues.

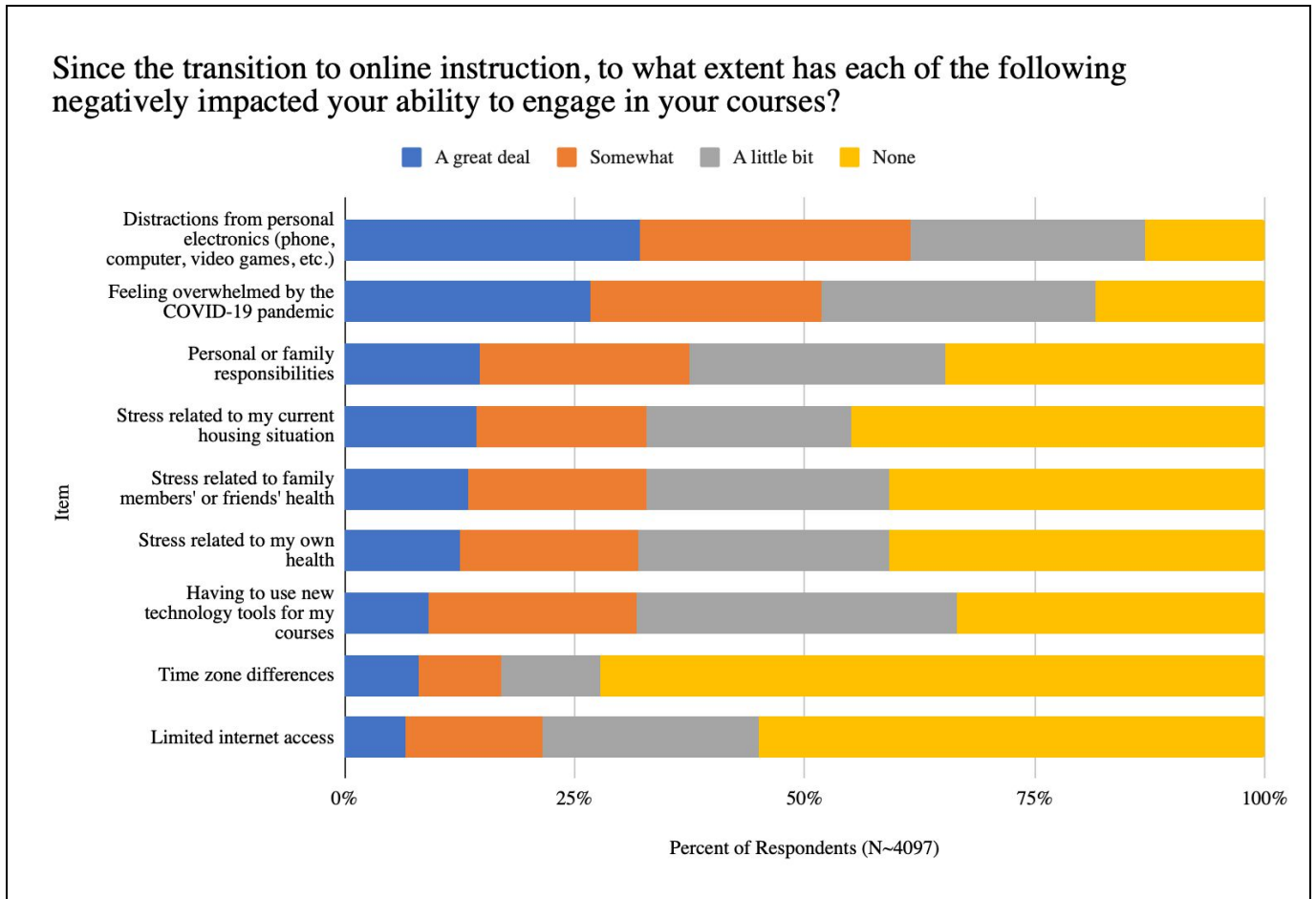
What does this mean?

- Learning remotely can be challenging for students, especially if their learning environment is not private or conducive to focused learning and engagement, and worries about the pandemic further contribute to this challenge.
- Learning science shows that focused, rather than divided, attention benefits student learning, and background thoughts/concerns can lower students’ performance.
- Teaching in this context also posed a new set of challenges to instructors, especially for interactive aspects like facilitating discussions and student participation.
- While many students and instructors did not experience significant challenges with technology, technical issues still arose for a non-trivial percentage, so instructional plans should flexibly accommodate and plan for such disparities that can vary over time and across individuals.

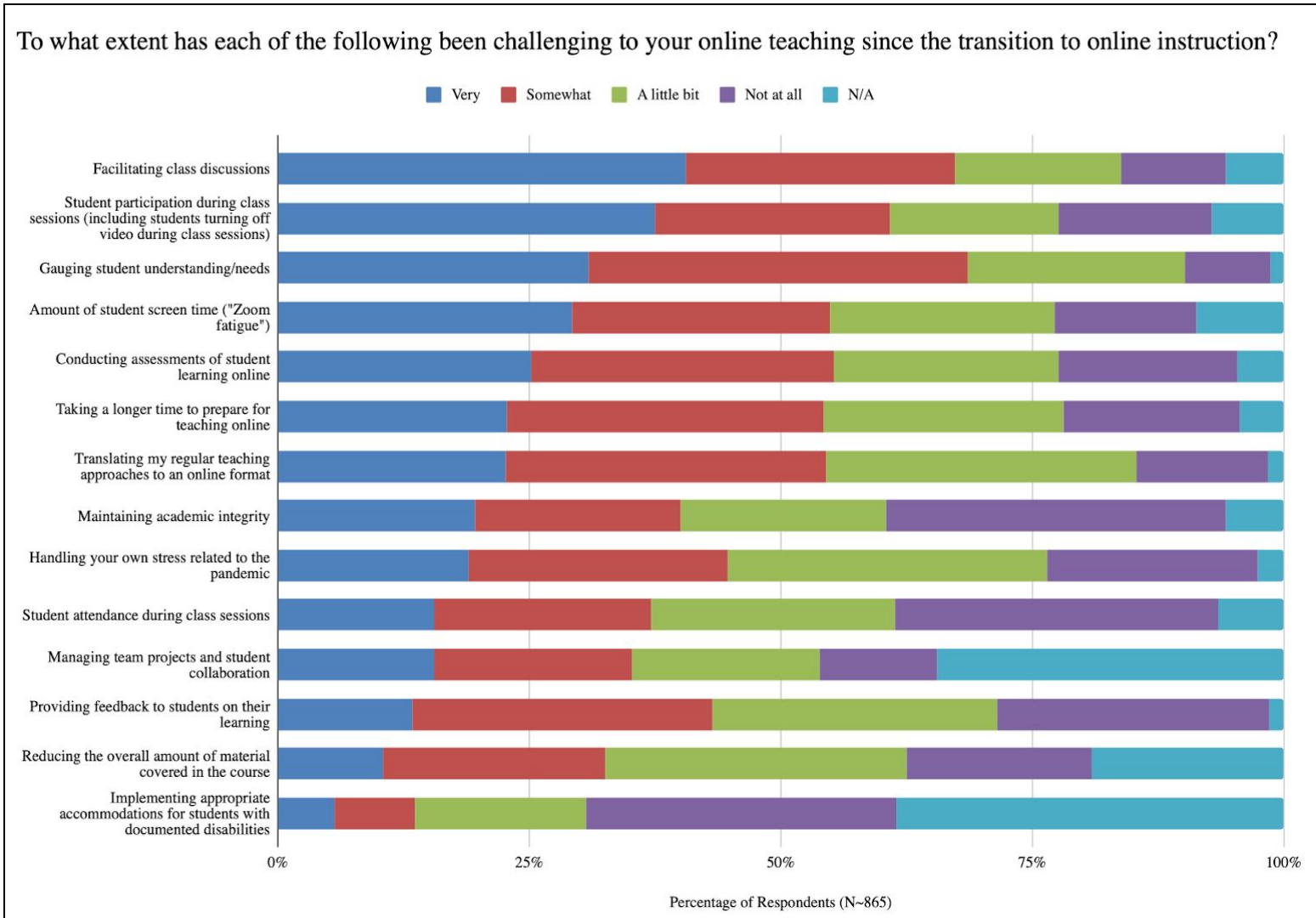
What can instructors do?

- Although keeping students engaged is a common challenge, learning science research tells us that the use of active learning strategies has a positive impact, even in a remote setting. Active learning can be synchronous (e.g., during a class session) or asynchronous (e.g., between class sessions).
- Instructors have numerous options to leverage active learning and technology to effectively engage students while teaching remotely. General strategies and specific examples for active learning in remote/hybrid contexts can be found here:
 - [Active learning strategies](#)
 - [Disciplinary examples of asynchronous and synchronous active learning](#)
- Contact an Eberly colleague (eberly-assist@andrew.cmu.edu) to discuss how best to implement active learning or address other challenges to remote/hybrid teaching.

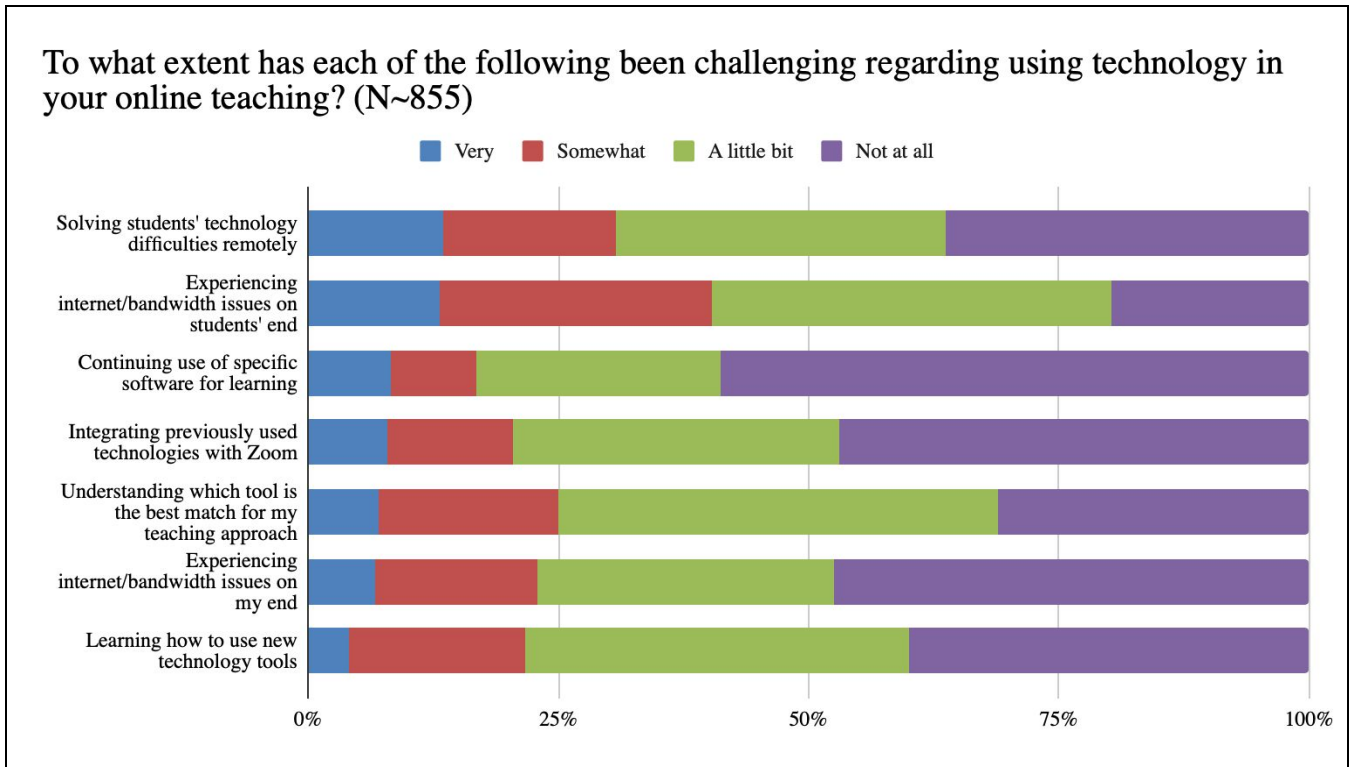
Student Q: Since the transition to online instruction, to what extent has each of the following negatively impacted your ability to engage in your courses?



Instructor Q: Thinking about the same course you selected earlier, to what extent has each of the following been challenging to your online teaching since the transition to online instruction?



Instructor Q: Since the transition to online instruction, to what extent has each of the following been challenging regarding using technology in your online teaching?



Sense of Community and Support

What did we find?

- Both student and instructor data suggest it was challenging to maintain a strong sense of community and connection in their courses.
 - Feelings of support and belonging vary greatly among students, with approximately 50% reporting little or no sense of belonging following the transition to remote learning.
 - Approximately 75% of instructors indicated that feeling connected to students was either “very” or “somewhat” challenging in the remote learning format.

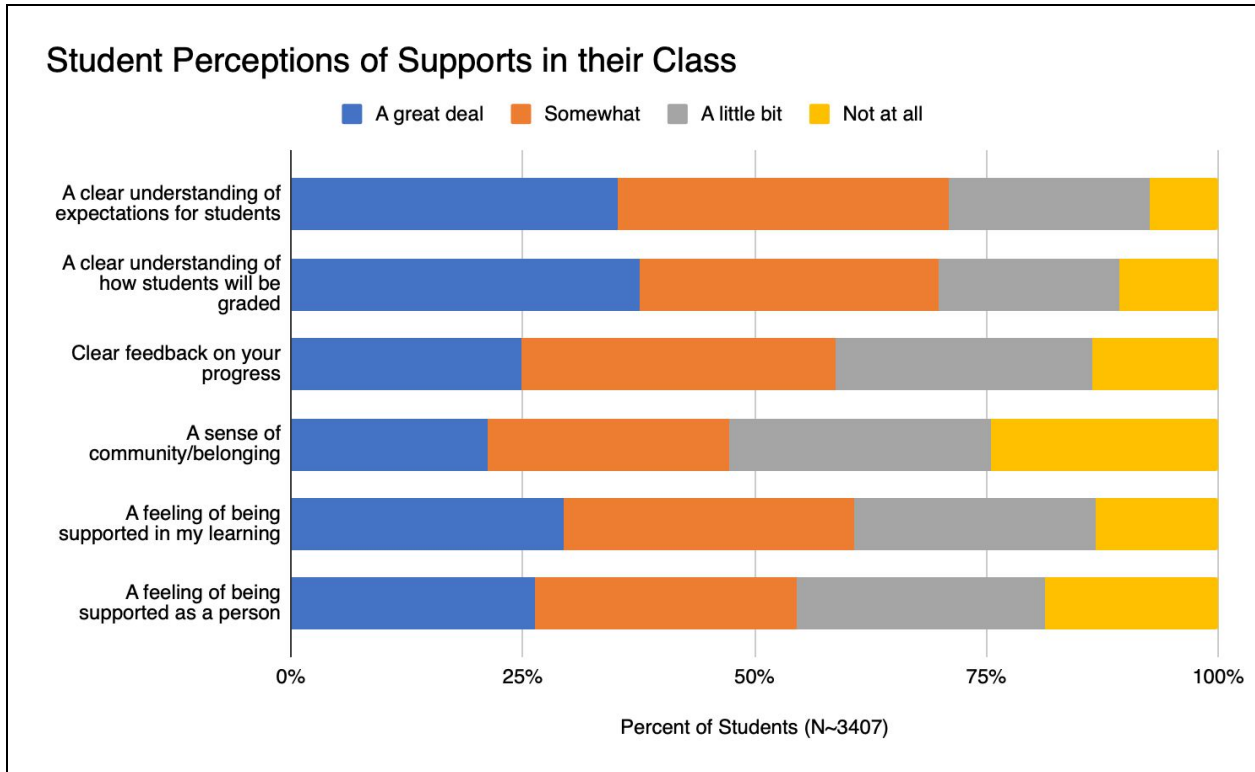
What does this mean?

- Feeling connected to each other in a remote setting doesn’t always come naturally, and can be a struggle for both teachers and students, even in the absence of a pandemic.
- We know from a wealth of education research that students’ sense of belonging is an important variable that is associated with positive learning outcomes.

What can instructors do?

- There are small but effective steps that faculty can take to enhance and maintain a strong sense of community in their courses. Specific examples contributed by faculty can be found [here](#).
- Instructors and/or students also cited the following general strategies that they found to be beneficial in creating a positive remote experience.
 - **Opportunities for individual support** - Through individual office hour meetings or emails, instructors addressed both academic and personal student concerns.
 - **Check in** - Instructors made a point to check in with students about their general well-being and stressors related to the pandemic. This often occurred as a large group at the beginning or end of a class session.
 - **Feedback** - Instructors used student feedback to make decisions about how their courses are run.
 - **Accommodation** - Instructors were sensitive to individual student circumstances and accommodated them when possible.
 - **Collaborative learning** - Instructors provided opportunities for students to communicate and work together in order to provide each other support and build a sense of community.
 - **Non-academic ways to increase morale** - Instructors attempted to provide distractors in the form of humor, recreational interest, or personal disclosure to lighten the often stressful atmosphere.
 - **Clarify expectations** - Instructors clearly communicated their expectations through weekly emails, clear assignment prompts, etc.

Student Q: Since the transition to online instruction, how much did the course you selected provide you with the following?



Student Q: If you had a positive experience(s) related to the previous question, what did your instructor do to foster that experience?

Themes:

- **Individualized support:** Students appreciated when instructors provided individual support, whether it was answering student questions or supporting their well-being. This often occurs through individual office hour meetings or email.
- **Whole class support** - Students appreciated when instructors dedicated some class time to checking in with the students. This often took the form of instructors/TAs asking everyone how they were doing at the beginning of each class. Students also appreciated instructors acknowledging Covid and the current situation.
- **Student input** - Students appreciated when instructors asked for their feedback and input regarding the course and assessments.
- **Flexibility** - Students appreciated when instructors were understanding of their situation and when they responded with flexibility regarding their course (e.g. adjusting workload, modified assignments, extended deadlines).
- **Collaborative learning** - Students appreciated being able to connect with others through group discussions and projects.

Instructor Q: Thinking about the same course you selected earlier, to what extent has each of the following been challenging to your online teaching since the transition to online instruction?

