



HARVARD

Office of the Vice Provost for Advances in Learning

Summary

This report summarizes responses from more than 700 faculty members from across Harvard's schools and divisions on their experiences, successes, and challenges teaching online during the second half of the Spring 2020 semester ("Remote Spring").¹ The surveys were administered at weekly intervals during Remote Spring. Seven Harvard Schools participated in the surveys (FAS, SEAS, HBS, HKS, HDS, GSD, and DCE). Some Schools participated in all surveys, others at discrete points in time. Faculty were asked to share their responses on a range of questions including: teaching tips, requests for resources, aspects of residential teaching that they missed most, aspects of remote teaching that they viewed as surprising or positive, and several others.

As a whole, the responses illuminate five key takeaways:

1. Faculty are committed to creating an excellent learning experience for their students, residentially and online; synchronously and asynchronously. They also recognize, and emphasize, the need for preparation and practice, as well as patience and new approaches to instruction.
2. Over the course of the semester, faculty found a variety of innovative ways to keep students engaged; were empathetic to the challenges their students face; and eager to share their learnings and questions with peers.
3. While the vast majority of faculty missed many of the interpersonal aspects of residential instruction, many – roughly 70% - also appreciated the flexibility, creativity, and opportunities for inclusion offered by digital learning tools and remote instruction. A large number of faculty also acknowledged how remote teaching had caused them to reconsider their approach to teaching in the residential classroom once they return to that format.
4. The abundance of resources swiftly created to support the shift to online instruction were recognized as useful for faculty; there remains enthusiasm, even at the end of the semester and looking ahead to the Fall, for more training, guidance, and opportunities to innovate across Harvard's many disciplines and teaching modalities. However, the sheer quantity of resources and their scattered nature can be overwhelming and challenging to sift through.
5. Despite the commitment to creating an excellent learning experience, there were expressions of frustration, skepticism, and annoyance, as well as a profound sense of loss. Not all faculty felt

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teaching online could fulfill their goals for their courses, or that they were able to truly engage with students.

It is worth noting that the responses included in this report came from faculty who taught during the Spring 2020 semester, so these findings may not entirely reflect the needs of faculty who will be teaching remotely for the first time in the Fall. On the other hand, the kinds of resources that will be useful for faculty doing remote instruction for the first time this fall are likely to continue to be helpful for faculty who jumped into remote teaching unexpectedly this spring.

This report focuses on faculty survey responses to questions that were asked towards the end of the Spring 2020 semester, and after faculty had several weeks of experience with remote teaching. This report begins with a section of tips, suggestions, and promising practices identified by faculty who taught online during the spring semester. The next section identifies aspects of face-to-face (F2F) teaching that faculty deeply miss, followed by a section outlining ways in which remote instruction may offer improvements over F2F classroom experiences. Next, faculty share ideas for incorporating activities, tools, and pedagogical innovations developed in an online context into their F2F classrooms. A section exploring how faculty experienced the transition to online instruction over time is followed by notes on significant turning points, “aha moments,” and other pivotal experiences that faculty noted as significant and meaningful. The report offers some initial ideas from faculty for how to incorporate group projects into courses with geographically dispersed students. Finally, the report concludes with areas where faculty continue to seek guidance, advice, or resources even at the end of the spring semester.

Teaching tips for colleagues

Survey question: If you were offering ONE teaching tip to a colleague teaching a similar class through Zoom, what would it be?

The thoughtfulness and creativity of the faculty’s teaching tips for their colleagues reflect a profound commitment to providing students at Harvard the best possible instruction under the circumstances. While some faculty were familiar or comfortable with digital learning technologies and pedagogical strategies for online teaching, many others were approaching these for the first time. As a result, the suggestions faculty offered to their colleagues included everything from “learn to use breakout rooms” to “look at the camera” and “Expect technical issues and prepare back-up plans.” A consistent refrain in the faculty advice was to “be patient, be flexible, and it will get better.”

In general, faculty advice for their peers falls into three broad categories – **preparation, classroom management, and things to avoid** - with more specific themes emerging in each.

The first is **preparation**. This category includes everything from how to set up your workspace and what devices to use for what, to the ways that lesson planning changes in an online context.

- **Tech and platform configuration.** In addition to providing reminders to practice switching between applications and views in Zoom, faculty evangelized the use of second devices (especially for whiteboarding) and multiple screens for maximum flexibility. A general tenor of the advice was to master a few features that are necessary rather than become a Zoom master

– and then to focus on the intellectual content and pedagogy for the class. Examples of tech and platform configuration tips include:

- Use two monitors: one for the lecture material and one for the matrix of student faces.
 - Pre-mute your class.
 - Master the windows/placements, so you can focus on boarding, calling on students, and thinking about the intellectual content, rather than worrying about whether Zoom is working well.
 - Use a second device (e.g., a tablet) like a whiteboard you can write or draw on in real time.
 - In large classes, speaker view can help you focus on a single student asking or responding to a question.
- **Lesson planning.** Faculty emphasized the need for short and varied activities, engaging visuals, and a well-planned agenda. They also noted that it can take more time to prepare for online instruction than for F2F teaching, particularly since faculty are familiarizing themselves with the technology for the first time:
 - Assume you can only accomplish 75% of what you can cover in a live class and plan accordingly.
 - Make the content a little shorter and go more slowly than you'd do in-person, and pause frequently to ask questions and interact with students.
 - Prepare and dry-run all elements of class thoroughly including video, polls, slides, break-out rooms, and practice transitions so the technology does not get in the way of teaching and the class flow.
 - Break the lecture into segments, and take (and ask) lots of questions.
 - Practicing ahead of time makes all the difference.
 - Practice, prepare, do trainings, experiment, try new things (but not all at once).

The second broad category of tips pertains to **classroom management**. Here, faculty provided suggestions for how to enhance students' participation in discussions, assignments, and group work; ways to make synchronous classes more interactive; the importance of building community with students and making room for the emotional realities of a disrupted residential experience; and establishing clear norms around attendance and participation in class.

- **Establishing norms and expectations**

- Figure out what norms you want to set in class (should students ask questions verbally whenever they want, type them in the chat, or raise a hand to ask?) and how you'd like students to engage with each other in breakout rooms, and make those norms explicit in the first meeting. Repeat as needed.
- Provide a suggested code of conduct/engagement for students.
- Set your expectations reasonably, and allow students to engage on their own terms.
- Encourage students to have their videos on so you can gauge real time feedback and engagement.
- **Assignments and participation:**
 - Provide discussion questions in advance.
 - Prepare written guidance for breakout sessions.
 - Create google excel sheets or word documents that they can share in order to view or fill in that they can then present on to the rest of the class
 - Give clear and detailed directions for assignments and group work
- **Interactivity:**
 - Keep the format varied, using slides, videos, polls, breakout rooms, and cold calling.
 - For guest speakers, solicit questions in advance. Have a brief prep call with guest speaker to plan breaks, pauses for questions, etc. so they seem well coordinated and keep the students engaged.
 - Small group discussions are key to keeping students engaged.
- **Community building and emotional wellbeing:**
 - Engaging with students online is harder and requires a more intentional approach than F2F.
 - Ask students how they are doing and create space to listen to them.
 - Acknowledge the challenges and realities of their situation and yours.
 - Allow time in breakout rooms for students to connect with one another.

The third broad category of faculty advice encompasses **things to avoid**. This set of suggestions included reminders to not simply try to reproduce F2F instruction exactly in an online format; cautions against

too many slides; and reminders that students may not be able to engage or participate at the level they had before the shift to remote learning.

- Do not assume that you can simply lift up your in-person class, even if you are midway through, and do exactly the same thing while teaching online. A strong online course should be designed to be online from the outset.
- Don't assume that 100% of the content from your course should be adopted into the online format.
- Don't try to replicate the physical classroom experience.
- Don't just give your regular lectures.

Aspects of on-campus teaching that instructors miss the most

Question: "What aspect of the in-person teaching experience do you miss the most and has been hard to replicate online?"

In response to the question about what faculty miss about in-person teaching, many expressed a sense of loss for the community that had developed in their classes and the dynamism of meeting with their students in person, as a group. Many faculty added that there is an intangible connection and energy that emerges from the in-person class that few instructors have been able to replicate online.

Faculty also cited specific resources – classroom assets, labs or studios, museums, access to public spaces and to the public – that play integral roles in how they teach and as course materials, but which are not accessible remotely. Others remarked on aspects of their courses that rely on human physical interactions that were difficult to replicate online.

A small number of faculty cited concerns about academic integrity; the urgency of these concerns may increase as plans develop around grading during a fully online semester.

The main losses that faculty cited were:

The ability to **read the room**. Many faculty described the challenges that come from not seeing students' body language and facial expressions as a way to gauge comprehension, interest, and engagement in class. Some faculty had a number of students who did not have or did not use a video camera, and they could not tell if the students were present, although they had logged into the meeting.

In addition, instructors could not easily walk around the virtual classroom to glance at students' work "over their shoulder" for the purpose of monitoring their progress or providing feedback, or monitor several concurrent small group discussions at once.

More specific concerns included:

- On zoom, when the presenter is sharing their screen, only a small number of participants are visible, significantly limiting instructors' ability to monitor the class.

- Difficulties reading the room were a particular challenge for instructors who teach controversial topics about which students may have strong feelings. This may lead faculty to avoid some of the more sensitive topics because they are unable to effectively gauge students' reactions.

Classroom dynamics and spontaneous adjustments. Teaching online does not allow the same degree of flexibility or spontaneity as teaching in person for a variety of reasons, for example because existing technical set-ups limit instructors' ability to make adjustments on the fly. It is also difficult to steer the discussion in an organic way, to replicate the energy of classroom conversations, and to have more spontaneous content-focused discussions. Similarly, the lack of classroom resources such as blackboards can make it difficult to address unanticipated questions that require drawing or writing out work, etc.

As one faculty member noted, "the stumbling silences, verbal collisions, and body language that are integral to the way we engage in thought creation in a seminar room seem sheared away by the flattened and formatted screen."

- Discussions are not as vibrant, because students must very explicitly take turns.
- Cold-calling feels sharper.
- There is only one level of "hand raising" possible, so students who are especially enthusiastic about a topic are unable to signal their interest.

The **sense of community** that had been developing in many courses was diminished or absent online. A number of different elements are linked to this:

- The informal interactions that occur before and after class, when meeting spontaneously on campus or for a meal, etc. These include curricular, extra-curricular, and social conversations.
- The intimacy of the classroom and the connections that can only be made when you are sharing the same physical space
- The rapport that develops within a class as a result of conversations that occur over time
- "The cultivation of an empowering and supportive learning community is very challenging on zoom."

Some instructors perceived the **effectiveness of peer learning** over zoom to be limited. While many acknowledged that the breakout room feature in particular seems well-suited to peer learning, instructors can only visit one "breakout room" at a time, making it difficult to monitor group work. In addition, technical difficulties and access to resources pose a challenge for some students sharing their work.

Several instructors also noted that, compared to in-class discussions, students on Zoom directed their comments largely to the instructor, interacting with each other less than they had when all were physically present in the same space.

A variety of elements of **the physical classroom** were difficult to replicate on zoom, and, for some, course pacing was more difficult in their absence.

- Black/white boards for drawing, notes, and work, both planned and spontaneous
- Access to specimens, models, other artifacts
- Studio culture and the ability to observe a project's progress over time
- Use of classroom geography to physically move through a lesson
- The challenge of remaining energized when sitting in front of a computer (for both instructors and students)

A number of different limitations related to **the physical human bodies** of instructors and students

- The physicality and theatricality of acting, reading literature aloud, or theatrical presentation of other materials, etc. does not transfer to the online modality well
- Some language instructors cited difficulty simultaneously monitoring their entire class
- Use of gestures and other physical actions to highlight or illustrate, and to build energy
- Hands-on interaction with and manipulation of physical objects
- In-class counseling exercises, training to assess body language, and other coursework that involves the physical human body is difficult to accomplish remotely

In some cases, **students' access to resources** limited their ability to participate in class or the kinds of learning activities that instructors could provide.

- Internet bandwidth was an issue for some students that prevented them from participating fully during class meetings.

Courses could not employ visits to museums or other field trips.

Overall, this question surfaced a rich variety of responses that would be helpful to explore in more detail: some of these concerns may be addressable to a certain degree in an online format, others reflect deeper structural deficits.

Aspects of remote teaching that were better than on-campus

Survey question: "Are there aspects of the remote teaching experience that are better than the in-person teaching experience?"

Roughly 30% of faculty reported no perceived advantages to online instruction over in-person teaching. Conversely, 70% did, citing a variety of benefits. Some of these related to opportunities to make their classes more interactive and promote more equal participation amongst their students, while others appreciated the convenience of teaching and learning from home. A number of faculty reported that time and classroom management improved, though one noted, "My voice is amplified in ways it wasn't

before. I own and "host" the space. I have more control. This may not be a good thing on further reflection."

There was also an acknowledgement of some perceived tension that related to these opportunities, because they were not equally available to all students. Some students were not able to use the interactive features to the same degree as their peers, others may have been uncomfortable sharing a view into their living space with their instructors and classmates. And while the disruption to students' lives has allowed some to focus more on their coursework, for others it has made it harder.

The availability of **interactive tools** was frequently cited by faculty as an advantage of online instruction. These include those provided by the Zoom platform (screen sharing, breakout rooms, chats, polls) as well as other online resources such as the Canvas discussion boards, Google docs for real-time collaboration, [Kialo](#) for discussions and debates, [Miro](#)'s online whiteboard, etc. Some courses also used the Zoom chat function to share online resources, files, and other materials in real time, both from the faculty and between students.

- **Breakout rooms** were perceived to be particularly helpful, in particular the features of: instantaneous or near-instantaneous assignment of students, which saves time relative to moving students around in class, and the random assignment option, so that students are not always working within the same group
 - "Breakout room sessions are fantastic - both for students and teachers, I think. Sometimes big lecture halls make it difficult to form small groups that can work independently. Having small breakout room sessions lets teachers focus on small groups and also motivates students to participate more actively. It gave me a lot of feedback I would not have in a big lecture room, because students are less self-confident."
- The zoom "**chat**" feature was used in many ways by faculty, including soliciting questions or responses from students that instructors can then select from, addressing questions "offline" so that the flow of the class is not disrupted, and posting links to online resources or files
 - "Chat is a nice way of answering questions -- especially when others help with the answers while I manage the classroom."
- Ease of setup and use of the zoom "**Poll**" feature, as well as its anonymity
 - "I use the polling function once per lecture. That has been useful, especially to check how many students are following the material. I never did, or would, attempt the equivalent, were we not on-line."
- "I have students work collaboratively on problem solving. In the online class I use Google docs as the collaboration space for them. Unlike in class where I have to walk around a large hall to look at each table's work, online I can keep an eye on all of their work by clicking through tabs and I can easily make comments and give nudges to them without interrupting their conversation and flow."

- “I have been looking for ways to incorporate technology into my classes more, and this forced me to do so. Having students work today via Google docs to put together group presentations, as well as using Kialo for a debate, were great ways of achieving pedagogical goals.”

Convenience is a significant advantage, with many faculty specifically citing the elimination of their commute and the ability for students in diverse locations to meet together in a shared virtual space. Students are also more likely to “arrive” in the online classroom on time, so classes and meetings tended to begin and end more promptly. In addition, the disruption has provided some students more time to focus on their coursework, as extracurricular and external draws on their time have been reduced (though this is hardly universal).

Some faculty reported, interestingly, a **shift towards greater equity in participation**. They noted that being able to see each student’s name allows them to call on students that they do not already know, and approaches like call sheets and cold calling can better balance participation among their students. In addition, some students who are reluctant to speak up during in-person classes may feel more comfortable chiming in via chat.

- Simply having students’ names visible on screen makes it easier to call on students by name, which promotes a feeling of inclusion.
- Some instructors find it easier to keep track of students’ participation in discussion and to request participation from more students via zoom than in person.
- Gallery view assigns the same amount of screen real estate to each student (provided that they can all fit on one screen), and any student can be “front and center” in zoom’s “speaker view.”

A number of faculty used remote teaching to offer more **personalized learning experiences** to their students. This most often came in the form of arranging more one-on-one meetings and office hours via zoom, but in a few instances involved faculty restructuring their courses to provide smaller group interactions.

The ability to **pre-record lectures** and post them, as well as the ability to **record and share synchronous class meetings and chat logs** for students who were not able to attend is also a benefit, especially as it allows students who miss class to catch up on their own time.

Faculty appreciated that they could edit their pre-recorded lectures to be more clear and concise, and some used this as an opportunity to flip their classroom and use the synchronous class meetings for more direct interaction with students. One potential risk of this is that some faculty reported that they are covering more material because students have the opportunity to participate asynchronously, so they are no longer limited to a defined class period. It is important that this increase is not overly burdensome for students.

Some faculty invited **guest speakers** who would not have been able to come to campus to speak with their classes over zoom. While this option is not exclusively available when courses are being taught remotely, the situation did seem to make faculty more aware and likely to take advantage of it.

- (For Economics 10): “In one semester, we were able to bring in Ben Bernanke (DC), Tim Geithner (NY), Larry Summers (Boston), Greg Mankiw (Boston), Gita Gopinath (DC), Karen Dynan (Boston), and Ken Rogoff (Boston). Out-of-town participation would have been impossible without Zoom. This list includes a former Chair of the Federal Reserve System, two former Secretaries of the Treasury, two former Chief Economists at the IMF, one former Chair of the Council of Economic Advisers, and one former Chief Economist at the Treasury Department.”
- I had guest lecturers come in on specialized topics to give parts of lectures. This would have been impossible under normal circumstances--they were located all over the world.

While many elements that faculty are accustomed to using in the physical classroom are unavailable, they used **computer-accessible resources** that could be shared through zoom’s “share screen” function or as links in the chat. This includes online materials and apps or resources that they had not previously used during in-person classes. Having apps and links loaded and ready to go was a distinct benefit, but was not the only to use them effectively. Both faculty and students could use the “chat” function in zoom to spontaneously share links to relevant online materials. Specifically, faculty commented on:

- Ease of sharing online multimedia materials or files
- Students’ sharing links in the zoom “chat”
- Real-time shared annotations of documents, drawings, or other materials

Many faculty reported putting additional time into **preparations for class**, focusing on the questions: How do we use the synchronous time with our students wisely? What is most important for my students to learn? This allowed them to change the way that they teach, focusing more consciously on what can best be taught during class meetings.

- Some faculty developed new materials and resources that their students could use independently, and faculty who would not have done so otherwise flipped their classrooms.
- Knowing that they would lose the spontaneity of the in-person class, some faculty planned their lessons out more explicitly, and appreciated the greater control that they had over the flow of discussion.
- Being at their computers during class allowed instructors to have lesson plans and other preparatory materials right in front of them, which they used to manage the class.
 - “My teaching is more organized, my questions more “on” because I can work off a script rather than from memory.”

Lessons learned from remote teaching that you would bring into the in-person classroom

Survey question: "Is there anything from the remote teaching experience that you would take back and do differently in the in-person classroom?"

Responses to this question were divided. Nearly 30% responded "no" to this question, with the "no"s varying in tone. Some faculty thought there was no value to be gained from teaching online (and expressed this view with varying degrees of vehemence). Others noted that they were already doing certain things in the residential classroom that were helpful when remote teaching, would want to bring back to the residential classroom

Many faculty acknowledged that the transition to remote teaching compelled them to re-examine the ways in which they taught their classes and either substantively changed or planned to change the ways they teach.

Ways in which faculty expressed modifying their teaching and taking lessons from online back into the in-person classroom included:

- **Bringing more interactivity into the in-person classroom**, particularly through the use of breakout rooms and small group discussions in the classroom or otherwise redesigning activities to allow for more interaction. Representative comments:
 - I'll use breakout groups more.
 - I'll provide more quiet time for students to be doing their own work and learning - the discovery theory approach.
 - I'll assigning students roles or specific perspectives during discussions to keep things moving.
 - I'll coordinate planning and feedback capture via Google docs with TFs.
- **Exploring flipping the classroom**: some faculty found that the move to remote learning challenged them to entirely rethink the way they structure their classes. Some were interested in keeping or achieving a fully flipped classroom, while others expressed interest in doing less lecturing and more activities in their in-person classrooms. Representative comments:
 - I'm going to break up long lectures into semi-structured workshop interactions.
 - I'm going to shift F2F instructional weekend to fully online lecture course.
 - I'm going to flip my class: I'll do pre-recorded lectures and active learning during class time.
 - I created a class Slack workspace to enable asynchronous, interactive communication with and among students.

- **Taking advantage of the personalization that technology can allow even after moving back to an in-person setting**, for example by holding office hours on demand via video chats, using technology to facilitate team meetings, or using Zoom to facilitate the participation of students who are sick or traveling. Representative comments:
 - I'm going to always have Zoom going so that students who are unable to attend class can continue to participate.
 - I'll provide online office hours.
 - I'll encourage video use for distance learning students.
 - I'm going to use Canvas for communicating with students.
- **Doing more pre-planning when returning to in-person teaching** and rethinking how their classes were offered, including doing more pre-class preparation, creating more thoughtful slide decks, using more external resources, increasing the flexibility of the syllabus, and providing more detailed lecture notes. Representative comments:
 - I want to reduce the amount of content covered per class.
 - I'll start each class with an introduction/overview, agenda, and check in with students.
 - I'm going to give more specific instructions and directions and make sure they're provided in writing as well as spoken.
- **Changing tactics** and making some small practical tweaks to the way they taught in person, such as by using name cards for students, increasing their use of technological tools (such as Canvas, discussion boards, Gradescope, Slack, Google docs, etc.), writing less, improving time management, or using more polling.
- **Using technology to bring in experts:** Several faculty commented on how video conferencing could be used to facilitate having guests attend classes virtually rather than in person and how it could potentially make it easier to bring in guest experts in general.
- **Changing their approach towards assessment:** Faculty also spoke of changing their approaches towards assessment, both in terms of technical aspects (such as through using Gradescope for grading) and in terms of pedagogical aspects (such as changing the types of assessments being used). Representative comments:
 - I'm going to give short assignments due 24 hours before class to prime students for discussion.
- I'll move to completely online assessments and grading. Of the group that responded "no" to this question, there were those who felt there was no advantage to remote teaching and other who felt they were already doing many of the same things in their residential classes:

- **No - there isn't anything of value to bring back:** Many faculty felt there wasn't anything that they could bring back to the in-person classroom, to varying degrees. Some particularly vehement comments included:
 - Absolutely not. There is NO benefit to online teaching. You can barely even call it teaching (through no fault of even the best instructors, I might add).
 - Beyond a feeling of relief? No.
- **No - I was already doing many of the same things:** There were also faculty with either enough experience teaching online or who didn't change their approach much that they felt like there were no new things to bring back to the in-person space.

Change Over Time

Survey question: "How has the classroom experience changed from the first week of remote teaching to this week?"

Responses to the change-over-time survey question remind us that there is no single learning curve for the transition to remote teaching. While faculty were fairly evenly distributed in their determinations that the classroom experience either "got better," "got worse," or "stayed the same," such a taxonomy obfuscates the reality that gains in one area (such as technical fluencies) are often offset by losses in another. For example, becoming more proficient with Zoom's features can lead to repetitiveness and diminished focus on developing engaging class structures for students.

Identifying the responses' core themes (**technology, norms, fatigue, engagement, and personal circumstances**) generates a change landscape that is more reflective of the complex and interconnected challenges experienced by faculty and students.

Of all the themes, only **technology** use saw consistent improvement over time. Through training and repetition, environments and platforms, such as Zoom, became easier to use. However, for many, such improvement was both inevitable and of lesser importance to challenges experienced later in the term, especially those related to social-emotional learning and engagement. Such findings suggest that as the need for technology support decreases, the need for other resources increases.

Key categories of faculty responses to this question of how their experiences changed over the course of the semester include:

- **Technology:** Fluencies around platform and application usage improved for many
 - Improvements in the more process-oriented how-to aspects of remote learning were noted as "expected" by some (and could explain why others did not include it in their responses)
- **Norms:** Faculty and students successfully re-established group norms in response to the format/environmental shifts, although it took several weeks to do so

- Several faculty members highlighted the importance of trust bonds established earlier in the term (face to face) as integral to renewing and establishing norms in the online environment
- **Engagement**
 - Some faculty reported a decrease in student engagement as the term progressed
 - This manifested in a variety of observable behaviors including turning off cameras, using chat as the primary communication channel, being slower to participate in discussion, and absenteeism
 - Several faculty cited tension between certain standard engagement strategies and the need for sensitivity toward psycho-social factors
 - “I would normally cold-call in the classroom but didn't want to do that and add additional stress to students while online (especially if I couldn't see their faces).”
 - Some faculty saw increases in engagement toward the end of the term, especially as norms were re-established
 - “Actually, students have been consistently engaged, perfect attendance, dedicated to finishing the semester with the same good energy they brought to the face-to-face class sessions.”
- **Fatigue, Attendance**
 - Some faculty observed increases in fatigue among students
 - Some cited this as an outcome of the Zoom environment itself (digital fatigue), whereas others situated the effect within a broader framing of pandemic-related issues
 - Some faculty reported declines in attendance, although few of those responses quantified the reduction
- **Personal circumstances:** illness, deaths in the family, psycho-social wellbeing for students and faculty
 - Change narratives were often oriented around a concern for the unique, personal experiences of students (and how best to support them)
 - Rising concern for student well-being was accompanied by new anxieties around certain classroom management practices and instructional strategies
- **Roughly the same**

- Many of those who reported no change also included that they had prior experience teaching online

Most important lesson learned about teaching online

Survey question: "Looking back at your experience over the last several weeks, can you share what has been your most important learning moment about how to teach online? (It could be a single event or crucial "mistake" from which you learnt, or a more gradual learning that took place over this period.)"

One consistent theme in the answers to this question was that the spring transition to remote teaching did not occur in normal times. This was a time of stress globally and individually, for faculty and students, and both experienced disruption, anxiety, and in some cases trauma. As a result,

- **Empathy was crucial:** The effect of the global pandemic on learners, both in terms of family events and the contexts and living situations faced by students, meant that empathy was a vital part of faculty's experience teaching and engaging with students remotely. Faculty felt that the relationships formed through the weeks on campus in person facilitated a sense of community in the online space and expressed some concern about how things would be different without that in person time. Representative comments:
 - "Maybe the most important thing I learned in this specific experience is that I have to accept that for some students, trying to keep things as much the same as possible (same routine, same expectations) was the best possible thing I could do for them, while for others, it was equally crucial that I acknowledge that in fact things were NOT the same."
 - "The difficulty was not so much in the technology or pedagogy as much as it was with the mental health of our students and their capacity to focus on their academic work. I was too slow to reduce the workload, too slow to recognize just *how* debilitating the disruption was in the lives of our students."
 - "When multiple students had COVID-19 related family emergencies, I realized that in order to teach effectively via Zoom, I would have to offer multiple iterations of each lesson, sometimes on an individual basis. While this may have led to an unevenness of learning among my students, I believe that it also allowed me to tailor any given lesson directly to the interests and enthralments of individual class members."
 - "This has been sacred time with my students. Last week as they read their "braided essays" out loud to each other we took our screens outside and simply held the stillness together as we listened to birdsong all over the world. No one wanted to leave for over thirty minutes after class was over we all just held the shared space together. It was an unforgettable moment. Our stories bound us together. Finding beauty in a broken world is creating beauty in the world we find."

As for learnings around **classroom management**, there were various themes that surfaced repeatedly and fell into a few broad categories:

- **Norms, expectations, and incentives matter:** Several faculty commented on: how classroom expectations needed to be adjusted, both because of the global situation and because of the nature of teaching online; how the grading system (and changes) impacted student incentives; and how it was important, but challenging, to introduce norms around classroom attendance when these did not exist earlier.
- **Rethink format and content mix:** Many faculty noted that simply replicating the in-person classroom format will not work online. One noted: “Every lesson plan had to be rethought”. The most common reasons for the differences centered around a few key themes: (i) **Less is More:** it is hard to cover as much material in the same time as the in-person class – therefore either plan accordingly or reduce the length of the session; (ii) **Create asynchronous materials:** for difficult material, to prompt discussion, and to complement the in-class sessions. At the same time, several faculty noted that the core principles of effective pedagogy are similar to the residential classroom:
 - “Students are the focus of teaching--not the classroom. In person or online, the teaching space is just a means to an end. The end doesn't change. So, the question becomes, what are the best ways of using the tools at hand to reach students. Just as in a classroom, they need opportunities to put into practice the concepts and skills we're studying.”
 - “Over these last six weeks I've learned that the heart of a great classroom experience is the same whether we're in person or online: having an experience together and talking about it to mine it for questions and insight. The same skills and tools we use in our classrooms to create safety, inclusion, and welcome are available to us in the online forum.”
- **Engagement and interactivity** are critical to effective online classes, noted a large number of faculty. Representative themes were:
 - **Lectures don't work** as well: this was a common theme expressed by many faculty. “There is far more to teaching than information transfer”, noted one faculty. “Online moves twice as slowly”, noted another. Several advised breaking up lectures to inject discussion prompts every 15 minutes, or having more pre-recorded lectures that could trigger interactive discussions during the live sessions. Conversely, faculty who were already employing interactive pedagogies in the residential classroom noted that their transition was smoother than expected: “My experience was easy as a taught a seminar rather than a lecture course.”
 - **Create ways for students to talk to each other:** “Learning is a social activity” was a representative comment. Another was that dialogue in the Zoom sessions “worked

more as a star configuration (faculty-to-student) than a lattice.” Many faculty offered advice on how to get students to engage more with each other in ways that were particularly effective: have students lead the discussion; use breakout rooms; use shared Google docs rather than simply sharing your screen; relate the material to students’ own personal experiences; and create space for student presentations. One faculty noted the advantages of many-to-many interactions in the online classroom: “We were labeling nodes of the Cayley graph of a rather large finite group. This is usually done on the blackboard, one node at a time. Suddenly, different students started labeling different nodes, and the whole job was done in a couple of minutes.”

- **Invite guest experts** who may otherwise not be able to attend our classrooms to engage with our students.
- Finally, many faculty noted the importance of factors such as: practice, learning over time, preserving some flexibility, creating pre-work, and planning as ways to make things run more smoothly.

Group Projects

Survey question: “Looking ahead to the fall: If remote teaching happens and students remain dispersed across different locations, are there interesting examples of group projects for your course that students could work on that take advantage of their geographic dispersion?”

This question was designed to surface innovative ideas from faculty for the fall, in case teaching is remote and students are geographically dispersed. The idea of group projects received widespread support, with 60-70% of faculty stating that they either already integrated one into their course or foresaw the ability to do so in the future. A subset of those respondents (~5-10%) raised specific concerns around leveraging geographic dispersion, as access to one’s community will vary during a pandemic. Many of those who saw future potential expressed a need for strong examples and the opportunity to work with their peers (especially those with experience in this area of instructional design).

Negative responses accounted for ~20% of the total, with the most commonly cited reason being that their field of study was not conducive to group work. Some responses sought further clarification, requesting examples of what was meant by a group project or what is meant by leveraging geographic dispersion.

Broad categories of responses to this question can be identified as follows:

- **Yes** responses ranged from simple confirmation to detailed examples. Many supported the need for a library of strong models.
 - “We did this. My students selected advertisements for sodas from their own countries - Japan, China, Brazil, Nigeria -- and presented their analyses to the seminar. Then we all engaged in discussion after each presentation.”

- “Team projects toward medical innovation could happen between sophomores or in combination with older students, medical students, or students at other schools. Incorporating more people might be even easier.”
- “A group project that will enable students to take advantage of their geographic dispersion is to conduct mini interviews with members of their local community to get views on specific policy issues that we'll be examining in class. It would be like a real-time version of the Pew Research Center's Global Attitudes & Trends : <https://www.pewresearch.org/global/>.”
- “Yes, that would become a really interesting and stimulating aspect of the dispersion of the students. We could benefit, the students would benefit and the class would broaden in context. This being a course on ecology, interpretation of nature and management of nature.”
- “Yes. For example, because of the current situation instead of doing a group visit to a Harvard museum, I had each student visit a museum online. This forced them to choose a museum, choose an exhibit (which I would have normally done) and the result was much more interesting to all of us than a normal class visit.”
- “Yes. In one of my classes, students engage in case studies of chaplaincies at universities across the country. If social distancing is in place and it is safe to do so, the geographic dispersion may enable in-person visits. In another course, we interrogate contemporary monastic expressions of different religious traditions. Geographic dispersion may enable students to consider more examples than we currently investigate through field visits and immersion experiences in New England.”
- “People could perhaps do a project with manuscript with (electronic) archives from their country, or from a country other than the USA. Students could also do a "survey" on a hot topic in class among their family or friends back home (e.g. true or false, the Roman empire was a good thing for humanity), and report back. “
- Also counted among the yes tally were those who saw potential but needed **more time to think about it (or help envisioning and planning it)**.
- Some saw potential in group projects, but were unsure about how to leverage the **geographic dispersion (aspect) if students are home-bound**:
 - “It depends greatly on how much access students have to the world outside their living places. If they cannot go outside at all, or only under very limited circumstances, then I would not want to require them to do a project that involves trying to collect information or data from where they are in the world. This is because I think that the amount of mental and psychological stress that students would be under, if they are living with such restricted circumstances, would be so great that I would not want to

add to it by asking them to use the little time or limited ways in which they can be outside, to also do work for a class.”

- **Don't understand** responses suggest further clarification is needed around the terminology used
- Those who responded **no** often cited discipline constraints or implementation challenges (like student workload)
 - “No There is tremendous advantage to being on campus where they can access experiments in my lab or in the CNS, but none to being dispersed.”
 - “No, and not in most classes in my field . . .”

Areas of advice sought by faculty

Survey question: “If you could get advice or input from your faculty colleagues on ONE question related to engaging in remote teaching effectively, what would that question be?”

Faculty had a wide range of exposure to or experience with online instruction prior to Spring 2020's rapid shift to fully remote teaching. As a result, the kinds of resources that faculty need reflect diverse levels of digital fluency, technological and pedagogical innovation, and instructional planning.

The areas on which faculty are seeking input can be categorized into a few broad areas:

How to plan for a semester that starts with remote teaching (unlike the spring). This question reflects the mid-semester shift to online instruction, which allowed everyone to capitalize on the dynamics and relationships built in a F2F context during the first half of the semester.

The three most common sets of questions pertaining to a fully online full semester are:

- How to **build community** online when instructors and students don't build rapport during face-to-face interactions earlier in the semester?
- How to deal with **shopping week** during the first part of the semester?
- How to **set norms, expectations, and accountability** – including around attendance, effort, and participation – when the semester starts with remote teaching?

How to manage (negative) trends in emotional well-being as remote teaching progresses over an entire semester: Even over a half-semester's experience with online instruction, faculty expressed concerns about platform fatigue, emotional and mental deterioration for themselves and their students as the semester progressed with minimal or no interpersonal interaction, and as the initial excitement and novelty of remote teaching gave way to tiredness and isolation. Faculty are concerned that these issues may be exacerbated – for both students and faculty - if the *entire* semester involved remote teaching:

- “I felt a little less positive about the experience than I did last week. Students expressed appreciation for the class but also said that being on zoom so much was depleting. I realize how

much gets accomplished by body language now, and I miss those nonverbal forms of communication.”

- “I do want more acknowledgment that people are being asked to take on a substantial amount of additional work to prepare classes in a way that they may never need again, at a time when they're also shouldering enormous caregiving responsibilities and emotional strain.”

How to create engagement and community online: This was perhaps the most common area on which guidance is being sought: as one respondent put it, “I feel I am not even scraping the surface of ways to create relationships and community among my students.” Even as faculty neared the end of the semester, they remained interested in learning how to stimulate student engagement in a remote teaching environment and ways to create more interactive learning opportunities using remote teaching tools.

Common questions from faculty on fostering engagement and community among students refer to **both synchronous and asynchronous contexts:**

- What are the best questions to spark discussion?
- When to use chat and when not to use it?
- How to foster debates and discussions, and how to encourage back and forth exchanges between two students?
- How to get effective report-outs from breakout rooms?
- How to create more student-to-student dialogue rather than student-to-faculty interactions?
- How to get quieter students to speak up?
- How to create intrinsic motivation among students?
- How to get my students to engage in a large lecture class?
- How to set a firm tone about expectations around attendance and engagement while being aware of and adaptive to varied student needs?

Asynchronous/synchronous mix: Many faculty recognize that the mix of asynchronous versus synchronous materials may shift substantially as courses move online with more time for planning, yet many are not sure how to make this shift or to balance the mix of content appropriately. For instance, faculty are puzzling through questions like:

- “What does it mean to “design” my course effectively for the fall? I don’t even know what that means.”
- “How do we get support in dealing with the extra burden of re-planning courses that are now moving online?”

- “What types of activities should I avoid in a synchronous environment and instead transform into an asynchronous format?”
- “How should I move a 75-minute lecture online – offer series of shorter synchronous lectures or primarily asynchronous or long lecture with parallel student chat?”
- “Should I tape my lecture class? How can I do that effectively?”
- “How can I make effective pre-recorded demos?”
- “Can I get someone to look at my online course outline?”

Addressing equity issues: Many faculty raised questions around dealing with issues of equity for students arising from time zone differences, differences in access to technology, and personal circumstances that affect student learning and performance. Representative questions:

- “How can I most effectively hold live class sessions if students are in different time zones? How can I effectively engage them if it’s the middle of the night for them? And how can I fully include students who have unreliable internet connections?”
- “How can I feel comfortable calling out students who don’t have their camera on?”
- “I can teach effectively remotely. But what I cannot do is teach, period, without childcare.”

Reproducing spontaneous interactions: Faculty were also interested in developing ways to, even partially, reproduce the many spontaneous interactions that occur on a residential campus: study groups, hallway exchanges, lunch conversations, and casual conversations before and after class. Broadly, these questions ask how we can create opportunities for serendipitous interactions in a virtual campus environment.

Modality and discipline specific questions: Most of these questions related to ways to write math equations online, do portfolio reviews and modeling, or administer language exams. There were a large set of questions around teaching tips specific to particular modalities: for example, lecture classes (“what is the best alternative to a blackboard?”), case based discussions, or hands-on classes (“how best to see a large body of work as a pin-up when there are many images to compare?”; “what could replace the experience of the shared studio where works develop visibly over time?”; and “how have other faculty accessed film resources that aren’t widely available for streaming yet?”).

Assessments: Faculty are interested in learning how to effectively craft assessments for an online environment - specifically, what is an assessment approach that is both fair to all students and preserves incentives for students to put in effort and learn. Representative questions about assessments include:

- How to track attendance for large classes?
- How to track individual student participation during a class?
- How to reasonably assign grades given the format of online education?

Tech support questions:

- How to get help quickly when there are questions related to Internet connections or any other tech-related issue?
- How to increase awareness of, and avail of, resources around the university?

Finally, there were general concerns related to skepticism about remote teaching succeeding, constraints imposed by hiring freezes or furloughs, and the resources available for fall semester teaching.

A final note: as resources are prepared and distributed to faculty during the summer, it would be useful to balance the tradeoff between more advice and advice overload, as captured by the following comment: “How do you manage to dodge and absorb all [this] teaching advice? The overload of advice in the last few weeks was the most stressful thing during this semester. Everyone is suddenly an expert in online teaching.”

Conclusion

Overall, the learnings of Harvard faculty during the nine weeks of remote teaching, as captured through their responses to these surveys, are quite extraordinary. This is in addition to the learnings of our community of instructional support staff and administrators during the three months. Many of these learnings are already being incorporated into the various planning efforts for the fall. As Schools continue to coordinate and collaborate in these efforts, it will be important to keep these learnings in mind not only as a basis for enriching the educational experience for all our students in the fall, but also in informing how to best assist faculty preparations during the summer.