



AEESP Converging COVID-19, environment, health, & equity conference

Session 1 Transcript – October 16, 2020

12:02:39:34 Livestream on YouTube. By continuing to view the
12:02:39:34 webinar, you are consenting to be recorded. Some
12:02:43:89 Zoom housekeeping instructions. On the upper right
12:02:43:89 hand of your screen, if you are not seeing the
12:02:52:12 interpreter, we have sign language interpreters.
12:02:52:12 You can go to side-by-side gallery view. On the
12:02:59:49 bottom of your screen, you should see a question and
12:02:59:49 answer and that's where you can submit questions and
12:02:59:49 answers or to the hashtag #AEESPCONVERGINGCOVID.
12:03:11:37 There's also closed captioning. You can enable that
12:03:11:37 and there's also a website that will open up in a
12:03:11:37 separate browser with the closed captions for the
12:03:11:37 conference. We would like to share a short video
12:03:19:26 with you before we start about the goals of the
12:03:20:55 conference.
12:03:55:69
12:05:23:81 >> COLEEN: Thank you for video editing video. My
12:05:46:92 apologies. I will get the screen share back up. So
12:05:55:67 it is my honor to introduce the moderator of our
12:05:55:67 session today. Doctor Kimberly Jones. She is a
12:06:10:47 professor and chair of civil and environmental
12:06:10:47 engineering at Howard University and also an
12:06:10:47 associate Dean of research and graduate education at
12:06:10:47 the college of engineering and architecture. Her
12:06:13:17 research focuses on improving water and
12:06:29:70 environmental quality. She has served on many
12:06:29:70 different panels with the national academies of
12:06:29:70 science, E.P.A., and she served on the environmental
12:06:29:70 engineering grand challenges committee of the
12:06:29:70 national academies of sciences, engineering, and
12:06:35:27 medicine, for which this conference is based.
12:06:35:27 Please join me in welcoming the moderator, Doctor
12:06:38:25 Kimberly Johnson.
12:06:41:59 >> Good morning, – good afternoon. Six minutes ago
12:06:45:17 for us on the East Coast in good morning to those of
12:06:56:59 you on the West Coast. As a pleasure to moderate
12:06:56:59 this session. What would you think the conference

12:06:56:59 organizers were inviting me to moderate. I'm
12:06:57:41 excited about the topic because I do believe those
12:07:04:83 of us in our profession have an inherent
12:07:04:83 responsibility because of the kind of work we do to
12:07:08:42 be at the forefront as we deal with issues around
12:07:18:92 COVID-19, systemic racism and environmental
12:07:18:92 education. I wanted to start today with some basic
12:07:18:92 definitions. Systemic racism. Sometimes it's
12:07:39:98 referred to as institutional racism. And it really
12:07:39:98 refers to the systems in place that perpetuate
12:07:39:98 racial injustice. These systems may look different
12:07:39:98 depending on what year you were born in or what year
12:07:39:98 we are and or exactly where you are located
12:07:39:98 geographically. But in this country, those systems
12:07:39:98 are pervasive. And so they affect everything from
12:07:52:57 what neighborhood you live in, where you are
12:07:52:57 educated and where your children are educated, how
12:07:52:57 you are perceived by society, your access and
12:07:52:57 quality of healthcare you receive. Your likelihood
12:07:59:16 of being harassed or killed by police, your access
12:07:59:16 to voting, all of those things. All of those
12:08:00:97 institutions we have learned and the COVID-19
12:08:08:23 pandemic has really highlighted a lot of the
12:08:08:23 inequities and a lot of those systems. So the idea
12:08:22:53 of systemic racism is it's new to some folks and
12:08:22:53 offensive to others, but for many of us,
12:08:22:53 particularly of us with brown skin, it's an everyday
12:08:22:53 reality. And COVID-19 exposed a lot of these
12:08:29:44 systemic inequities, and it really has forced us to
12:08:29:44 think about how truly colorblind virus somehow
12:08:37:44 managed to affect different communities in very
12:08:37:44 disproportionate ways. And so I want to jump to
12:08:43:83 environmental engineering and education because
12:08:43:83 that's what we do. That's something that many of us
12:08:50:99 as professors were students and environmental
12:08:50:99 engineering, we have, for many years viewed the main
12:08:56:34 purpose of our work to really safeguard public
12:08:56:34 health. We deal with water – wastewater treatment
12:08:59:60 and air pollution, and a lot of our work is focused
12:09:06:12 around a lot of the technical issues related to a
12:09:06:12 lot of those things. We are truly the caretakers of
12:09:15:78 the global public health. And we provide scientific
12:09:15:78 underpinnings for many of the enforceable permit
12:09:19:25 regulations to protect and preserve our water land
12:09:27:91 and air resources.
12:09:27:91
12:09:27:91 We also educate the next generation of scientists
12:09:27:91 and engineers who will continue the tradition and do
12:09:27:91 the same.
12:09:29:30
12:09:39:26 And then when COVID-19 came, it really turned a lot

12:09:39:26 of these institutions upside down in the way we were
12:09:39:26 teaching our students. A lot of those things really
12:09:39:26 changed. In the grand challenge report that my I
12:09:43:92 mentioned earlier addresses the grand challenges and
12:09:53:93 I think Colleen mentioned what our main grand
12:09:53:93 challenges were. We had an ultimate challenge. We
12:10:02:27 had the five grand challenges, but then we defined
12:10:02:27 as the ultimate challenge preparing a field to
12:10:02:27 address a new future. And that's where our
12:10:04:01 community, AEESP, is really important to make sure
12:10:11:21 that we are able to realize that challenge, then we
12:10:11:21 are able to really prepare for future environmental
12:10:14:41 engineers and scientists to address in the future is
12:10:18:41 not changing on the scale of decades. We are seeing
12:10:21:78 that we are really changing on a scale of months.
12:10:39:84 It's not even two or three years. We were asked to
12:10:39:84 do this report looking forward in the next 30 years,
12:10:39:84 but we have seen such huge changes just in the last
12:10:39:84 6 to 8 months that we are finding we are having to
12:10:39:84 really adapt on a much faster timescale. So I
12:10:41:28 really want to challenge everyone as we get into the
12:10:44:41 meat of today's conference to really think
12:10:47:99 critically about how we can encourage collaboration,
12:10:59:37 interdisciplinary work and research, and community
12:10:59:37 level engagement in all of our work and how we can
12:10:59:37 inspire our students to do the same thing. COVID
12:11:12:46 has furthered this challenge. When we did the
12:11:12:46 report couple of years ago, we never envisioned we
12:11:12:46 would be in a pandemic two years later, so this
12:11:12:46 really does highlight the importance of a lot of the
12:11:12:46 things. In today's session you will hear a lot of
12:11:15:80 folks talk about how the COVID-19 pandemic has
12:11:24:58 already transformed the way that they teach their
12:11:30:38 classes, the way they think about the research, the
12:11:30:38 way that we gather as a community. So I want to
12:11:50:82 thank all of you for attending the session today.
12:11:50:82 We appreciate you being here. I hope you have
12:11:50:82 submitted lots of questions and you continue to
12:11:50:82 submit questions as we go along with our panel
12:11:50:82 today. So with that, went to thank you and
12:11:50:82 introduce our first speaker.
12:11:50:82
12:11:50:82 Our first speaker is Alicia Ferguson, an associate
12:11:52:18 professor at North Carolina AMT and she will talk to
12:11:55:40 us about resiliency and adaptation during the
12:12:06:45 pandemic and some of the findings are team has
12:12:06:45 learned across institutions across student, faculty,
12:12:06:45 and administrators in all stem fields so let's
12:12:09:45 welcome Doctor Ferguson.
12:12:18:94 >> Thank you for joining us. Today, I want to touch
12:12:18:94 on the subject of student resiliency and – in stem

12:12:23:36 fields. There's a larger effort by what I'm
12:12:30:34 visiting here supported by NSF grant to overall look
12:12:30:34 at decision-making processes by students in stem
12:12:35:37 fields. Resiliency is the ability of a person
12:12:35:37 society or even an environment to recover rebound
12:12:38:99 from a significant or even a small trepidation. We
12:12:44:16 are interested in and how STEM students are able to
12:12:55:31 recover and even in some cases thrive in their
12:12:55:31 academics following what to be considered a drastic
12:12:55:31 change in health teaching and learning is being
12:12:55:31 delivered and comprehended. Due to the need to
12:13:00:36 social distance and protect health, we experience a
12:13:00:36 Siebel shift to online synchronous and asynchronous
12:13:13:81 educational delivery causing students to adjust to
12:13:13:81 what we call a new normal we are learning.
12:13:13:81
12:13:19:23 Resiliency is often affected by predisposed enabling
12:13:21:71 and reinforcing factors. And there are many
12:13:28:99 theoretical frameworks and contexts to understand
12:13:28:99 resiliency. This context may be new and we like to
12:13:32:65 start with communicating in ways to teach and learn
12:13:47:47 during this pandemic. We interviewed 18
12:13:47:47 administrators, 63 students, and 32 faculty members
12:13:47:47 across six institutions we thought had varied
12:13:47:47 profiles, like student demographics, including race.
12:13:47:47 We focused in the interviews on questions
12:13:56:24 surrounding their experience and perceptions related
12:13:56:24 to student functioning, behavior, and performance.
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12:14:02:88 We went through a process to transcribe and do those
12:14:08:98 interviews that I just mentioned and here we present
12:14:08:98 some main points that are noteworthy findings, and
12:14:11:82 here are some student views. So out of necessity,
12:14:14:19 many labs were shortened, streamlined or stopped and
12:14:21:28 students reported as a consequence their
12:14:21:28 participation and understanding was reduced.
12:14:24:99 Faculty struggled to get the same experience in the
12:14:30:17 online environment. Professors were unable to meet
12:14:32:79 with students in person and one-on-one, although
12:14:40:77 some of the meetings were facilitated, students felt
12:14:40:77 their academic progression was affected. In a
12:14:44:04 similar way, they really missed that peer
12:14:51:95 interaction and support. Where this is critical in
12:14:51:95 motivating students to perform based on shared
12:14:51:95 experiences. Thirdly, additionally, really
12:15:03:37 ironically, some of the students admitted that
12:15:03:37 faculty leniency and even pass/fail options,
12:15:03:37 although appreciated and in some cases it was
12:15:03:37 needed, you know, it worked to reduced motivation
12:15:09:16 and even enthusiasm for learning.
12:15:10:53

12:15:19:84 For faculty, these thematic areas routinely
12:15:19:84 surfaced. Faculty noticed difficulties in students
12:15:25:25 ability to cope and performing work, particularly
12:15:25:25 right as universities shifted largely to the online
12:15:29:58 format, so that March/April period. Faculty found
12:15:38:78 that there were positive adjustments in recovery for
12:15:38:78 many students as time progressed. Universities
12:15:38:78 asked faculty and what we found is inconsistencies
12:15:43:42 and lack of clarity on what lenient really meant and
12:15:46:86 how to establish that fairly and strategically.
12:15:53:79 Understanding how this affected the students's
12:15:55:78 decision-making and resiliency will be challenging
12:15:57:15 for us.

12:15:58:71
12:16:01:30 From the administrators 's prospectus, they had
12:16:06:60 conflict and responsibilities to consider. How is
12:16:06:60 the University going to ensure overall functioning
12:16:12:32 and how are we to respond only to student learning
12:16:13:95 and achievement, kind of the ultimate goal but also
12:16:23:44 faculty response in functioning when faculty are a
12:16:23:44 critical part of that student experience.
12:16:23:44 Administrators – I mean deans, chairs – they had to
12:16:40:17 make decisions on pass/fail and withdrawal options,
12:16:40:17 and along with that, the impact of student learning
12:16:40:17 outcomes and transitioning from high level courses,
12:16:40:17 graduate school, and even to the workforce for those
12:16:40:17 senior students. In particular, hands-on labs, new
12:16:45:47 experiences, and learning from doing are critical
12:16:45:47 aspects of STEM learning. Administrators also found
12:16:50:24 both a lack of motivation and ironically increased
12:16:52:87 motivation in achieving learning goals. It has
12:16:58:49 either some families and students have increased
12:17:01:93 challenges in their lives, while some have decreased
12:17:09:45 distraction and will be back to more ideal home
12:17:09:45 environments. Again, this is likely where the
12:17:09:45 impact of COVID was not the same for all the
12:17:15:85 students in all communities. We refer back to the
12:17:15:85 term resiliency. These predisposing factors that
12:17:29:52 affect coping, recovery, and rebound come into play.
12:17:29:52 Your resources, Internet access, a large home for
12:17:29:52 private spaces to learn, and even the University
12:17:29:52 that you attend with its given resources are all
12:17:33:84 influential for resiliency.

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12:17:36:43 Universities learned quickly about the level of
12:17:38:25 technology savviness for students and faculty for
12:17:41:43 either stemming online cheating or facilitating labs
12:17:51:30 online as examples, and in some cases, universities
12:17:51:30 really try to increase the knowledge base rapidly
12:17:52:83 with training and purchasing equipment.
12:17:55:84

12:18:00:58 But what can we do as a university to support
12:18:11:33 student resiliency in the STEM fields during events
12:18:11:33 like COVID-19 really change specifically how STEM
12:18:11:33 content is delivered? These are some of the main
12:18:13:46 thoughts from all groups, student, faculty, and
12:18:19:77 administrators. We need to get students and faculty
12:18:19:77 needed responses – resources. We need to be
12:18:23:42 proactive about creating and delivering innovative
12:18:38:69 lab content online. We need to collaborate and
12:18:38:69 share ideas across universities and educators. We
12:18:38:69 need to find innovative ways to have students
12:18:38:69 internment companies and even other universities
12:18:38:69 online to continue the course of learning. To do
12:18:44:20 this we need to plan for emergency funding and
12:18:48:21 create programs for training and development. There
12:18:49:44 are other strategies not mentioned. Mental health
12:18:58:81 counseling, safe study spaces and so forth that are
12:18:58:81 equally critical, especially given the COVID impact.
12:18:58:81 We have a second phase of interviews in early
12:19:01:44 spring as COVID impacts are continuing and we hope
12:19:07:16 to get the quantitative data looking at the
12:19:12:91 differences across universities in different groups
12:19:15:62 and even build on a framework. I want to thank all
12:19:24:88 of the investigators on this project and our student
12:19:24:88 researchers that work through this pandemic with
12:19:24:88 resiliency. Thank you.
12:19:30:65 >> Thank you very much, Alisha. Next, we have
12:19:36:23 Doctor Susan Masten a professor at Michigan State
12:19:39:62 University and she will talk – Doctor Ferguson gave
12:19:44:13 a great segue – she will talk to us about
12:19:49:11 specifically some of the experiences she has had
12:19:54:64 impacting her education of students particularly in
12:19:54:64 teaching labs. Doctor Masten.
12:20:03:15 >> DR. MASTEN: Thank you. It's an honor to be here
12:20:03:15 and to present to you. What I'm going to talk about
12:20:08:25 today is a little bit of background information
12:20:08:25 about how the socioeconomic and equity issues
12:20:17:34 have impacted students and how we have tried to
12:20:19:61 address that at Michigan State University.
12:20:26:16
12:20:26:16 So research has shown that COVID-19 – next –
12:20:35:44 research has shown that COVID-19 has
12:20:35:44 disproportionately affected racial and ethnic
12:20:42:26 minority groups with high rates of death in
12:20:42:26 African-American, Native American, Latino
12:20:45:57 communities as compared to that in white
12:20:49:78 communities. This is thought to be due to a variety
12:20:49:78 of reasons including chronic medical conditions,
12:20:55:34 poor access to healthcare, along with living and
12:20:58:35 working conditions. It predisposes them to worse
12:21:03:76 outcomes. For example, the wealth of White

12:21:06:21 Households is 10 times that of black households. 30
12:21:18:65 percent of whites have had the privilege from
12:21:18:65 working from home during the pandemic. On the
12:21:18:65 contrary, only 20 percent of Blacks about the same
12:21:18:65 privilege.
12:21:20:66
12:21:30:66 COVID-19 has disproportionately affected
12:21:34:94 first-generation college students as compared to
12:21:37:79 students with college educated parents. Minority
12:21:45:13 seniors were much more likely to have changed or
12:21:48:72 canceled their plans to attend college compared to
12:21:51:44 white students. Interconnectivity is mentioned by
12:21:54:86 Alisha this poor among many of the students and this
12:21:59:85 poor or more students as compared to others. As
12:22:18:29 many of us are aware, international students have
12:22:21:34 been greatly affected by COVID-19. Trouble
12:22:24:99 restrictions have prevented many from returning or
12:22:27:64 arriving in the U.S. Their mental health may be
12:22:33:18 affected by their concerns with their families
12:22:33:18 health and well-being in their home country. Visa
12:22:40:66 requirements or delays have meant that many are
12:22:40:66 forced to remain at home and this results and a
12:22:44:61 sense of isolation from their peers. They struggle
12:22:55:98 with having to overcome time differences, challenges
12:22:55:98 to poor Internet and as mentioned the sense of
12:22:55:98 isolation which is affecting many of our students.
12:23:05:35 A year and 1/2 ago, which sometimes right now feels
12:23:14:47 like ages ago, I agreed to revamp our environmental
12:23:14:47 engineering lab class to meet the new student
12:23:17:93 outcomes and robust environmental engineering
12:23:25:42 program. When I did so, I had no clue that would be
12:23:25:42 attempting to do this during a pandemic. The goal
12:23:27:99 of the revised course was to provide students with
12:23:32:28 hands-on activities that would allow them to design
12:23:43:74 and conduct experiments and to analyze the data
12:23:43:74 generated to make sound engineering judgment and
12:23:43:74 recommendations. As the decision was made to move
12:23:48:79 almost all semester courses online, the activities
12:23:57:78 needed to be independent of location and could be
12:23:57:78 conducted remotely. My goal was to allow the
12:24:01:13 students to use inexpensive, readily available kits
12:24:08:57 to conduct their experiments. And thus over the
12:24:08:57 summer they developed six labs and for assignments
12:24:14:12 that would accomplish these goals. They labs, while
12:24:19:63 I think have been generally successful to have
12:24:19:63 challenges. While I lecture synchronously the
12:24:25:43 students are allowed to do their labs
12:24:28:17 asynchronously. This results in a significant
12:24:30:77 disconnect and a lot of email traffic. The students
12:24:37:99 are in teams and the need to compile data, and they
12:24:44:94 need to compile data, but time differences in the

12:24:44:94 inability to meet in person has resulted in
12:24:47:79 challenges for many of our students.
12:24:49:52
12:24:59:20 In this lab course and also in my water and
12:25:05:65 wastewater engineering class, which I'm also
12:25:05:65 teaching this semester I've used a number of
12:25:08:50 management techniques to try and overcome many of
12:25:10:40 the challenges that I have mentioned and Alisha also
12:25:16:35 mentioned for example, found that I needed to be
12:25:25:81 flexible with assignment due dates and office hours.
12:25:25:81 I've got students all over the world, some of whom
12:25:29:28 are on a 12 hour difference. So what works for me
12:25:32:14 doesn't necessarily work for them. I record my
12:25:34:49 lectures and I post them on YouTube, which they can
12:25:40:75 later view and that means they don't have to access
12:25:40:75 the course management system to view it, and as one
12:25:51:27 student noted, they like having them on YouTube
12:25:51:27 because he felt like he was watching YouTube videos
12:25:51:27 rather than doing work all the time. I never
12:25:54:56 expected that one, but it was interesting. They
12:25:57:94 don't require their video cameras to be on. They
12:26:02:43 are living – many are living at home, they are
12:26:04:90 living with multiple family members, so for their
12:26:07:39 own privacy sake, I think it's important not to
12:26:23:23 require video cameras on. In both of my courses, I
12:26:23:23 have chosen textbooks that are available to the
12:26:23:23 University library system so the students didn't
12:26:23:23 have the added expense of textbooks. I've used
12:26:25:86 teamwork and it helps building community but there
12:26:34:21 are challenges, especially for those overseas, those
12:26:34:21 with court – poor Internet connections, but as this
12:26:43:67 – at the same time it provides students
12:26:43:67 opportunities to socialize.
12:26:45:40
12:26:50:19 I found that students tend to struggle with time
12:26:50:19 management and remembering deadlines, so I sent out
12:26:54:91 weekly messages along with reminders at the start
12:26:54:91 and end of each lecture to help ensure that students
12:26:58:98 have the information they need regarding due dates,
12:27:04:24 assignments, upcoming lectures to help them be
12:27:06:92 successful. I have also used a class blog for more
12:27:15:39 informal communication, and then I've used
12:27:19:47 participation questions to focus on their mental
12:27:19:47 health and well-being. And lastly I think it's
12:27:23:43 really important, and Alisha mentioned this. We
12:27:27:76 need to maintain active collaboration amongst all of
12:27:30:23 us so that we don't have that same sense of
12:27:35:49 isolation. And we can move forward. Successfully
12:27:42:58 with educating the next generation of students.
12:27:47:40
12:27:52:13 These photos are my students this week who have been

12:27:52:13 out in the field sampling various different
12:28:01:40 waterways, and it's been exciting to see them.
12:28:07:66 Thank you. Sorry for going over.
12:28:09:50 >> That's okay. That was great. Thanks for sharing
12:28:14:82 a lot of your experiences this semester and giving
12:28:18:46 us great tips. Next up is a professor of – at
12:28:31:28 Washington University in St. Louis and is also the
12:28:31:28 chair of the 2021 conference – AEESP conference. I
12:28:36:02 hope everyone is preparing for that. He will be
12:28:36:03 highlighting some of the – really healthy conference
12:28:42:59 will using the convergence as an overarching theme.
12:28:47:86 So Dan?
12:28:51:24 >> Thank you very much, Kimberly. It's a great
12:29:05:82 opportunity to get to tell you what we have planned
12:29:05:82 for the conference for next summer and how we are
12:29:05:82 going to try to put convergence into this. I would
12:29:05:82 like to start out by thinking the cohosting
12:29:05:82 institution Missouri – University of Missouri and
12:29:09:59 Southern Illinois University at Edwardsville. And
12:29:15:96 so the question out is a large conference address
12:29:15:96 convergence? I will go through a couple of ways I
12:29:42:78 think we're doing that. One thing I will say at the
12:29:42:78 outset, we are all thinking what is July 2021 going
12:29:42:78 to look like? Our plan is to do an in person
12:29:42:78 conference. We are hopeful we can do that next
12:29:42:78 July. If we can't do an in person conference next
12:29:42:78 July we will do an in person conference later when
12:29:42:79 it's possible to do that. Ideally in 2022 with
12:29:42:79 maybe some smaller virtual events for July 2021.
12:29:46:77 But as those of you who have been to the conference,
12:29:59:89 the real benefit for the interactions we have with
12:29:59:89 people. And the other thing is I view this as a
12:29:59:89 play date. We want you to come to our house to play
12:29:59:89 in July 2021 so we can talk and continue this
12:29:59:89 conversation.
12:30:03:52
12:30:26:56 So how do we do this? The first thing is a simple a
12:30:26:56 strong and diverse team. As I said we have four
12:30:26:56 universities that are putting this together and we
12:30:26:56 have a strong organizing committee with
12:30:26:56 representation from all of these participating
12:30:26:56 groups. The other thing that we have done from the
12:30:26:56 very outset of planning the conference is happy
12:30:26:56 student committee, and we have a student chair, and
12:30:26:56 that person is already been looking out for what are
12:30:31:34 the types of things we want to have in the program
12:30:36:77 that will be of interest to students. And so that's
12:30:36:77 all I want to say here.
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12:30:43:35 So the whole conference theme and structure are
12:30:43:35 based on convergence. We call it environmental
12:30:43:35 science – engineering and science, and so as we have
12:30:56:22 looked at this, we have four convergence areas. I
12:30:56:22 will say more about that in a minute. And then five
12:30:56:22 grand challenges. We are going to use both the
12:30:56:22 convergence areas and the overall program of talks,
12:31:05:13 presentations, and workshops. Treinen –

12:31:20:34
12:31:20:34 If we look at the convergence areas we have before
12:31:20:34 them. Education and research. One of the things
12:31:20:35 that's special about the AEESP conference is it's
12:31:20:35 the education and research conference. It's both of
12:31:20:35 them. As environmental engineering professors,
12:31:44:34 that's what we do and what unites us as a community.
12:31:44:34 I'm excited that Yvette Pearson from Rice
12:31:44:34 University, the creator of the engineering change
12:31:44:34 podcasts will be the opening keynote. Then there's
12:31:44:34 research and action. Lots of us in the community
12:31:44:34 want to know how can we have an impact, and that's
12:31:44:34 so important right now in the middle of a pandemic.
12:31:44:34 We have Gary White and Amy prudent from Virginia
12:31:57:90 Tech who will be speaking to that and we had two
12:31:57:90 other research entrepreneurship practice and
12:31:57:90 research and air, water, and soil as other
12:31:57:90 convergence areas. The research air, water, and
12:31:57:90 soil, we go to the water meetings and air meetings
12:32:04:64 and solid waste meetings, but the AEESP conference
12:32:04:65 is the one place for all of us come together. We
12:32:09:69 are really excited about that.

12:32:09:69
12:32:12:98 We will have convergence and workshops. This is
12:32:26:70 interesting. And so there are a couple of things
12:32:26:70 we're going to be looking at here. Workshop
12:32:26:70 proposals are due in a few hours, but when we are
12:32:26:70 really excited about is environmental engineering
12:32:26:70 and environmental health science. We have a
12:32:26:70 proposal in the national Institute to help support
12:32:35:79 this part of the program check whenever I write a
12:32:35:79 grant, we always say whatever is happening is
12:32:35:79 important to human health and we are concerned about
12:32:44:95 that. I'm not interacting with environmental health
12:32:44:95 science researchers the way I would want to. So we

12:32:44:95 are going to have at least three workshops focused
12:32:44:95 on that. The microglia and environmental
12:32:49:88 engineering are some we think are going to
12:32:55:48 definitely be there. So how do we promote diversity
12:32:58:73 and access? I want to invite people from the
12:33:04:13 broader community and we are going to be seeking
12:33:10:40 sponsorships. One of the big things for this is
12:33:10:40 that we would like to make this an accessible
12:33:10:40 conference both financially location was in the way
12:33:16:92 we are organizing it. We are reaching out to NSF as
12:33:18:93 well as corporate sponsorship, and the big thing we
12:33:49:45 want to do is provide travel grants. We want this
12:33:49:45 to be a conference that money isn't the reason you
12:33:49:45 don't attend. We want people to be able to apply so
12:33:49:45 we get the broadest group at this meeting we
12:33:49:45 possibly can. And then starting in 2017, this
12:33:49:45 meeting was held on a Tuesday through Thursday. So
12:33:49:45 anybody was trying to – as we all right now, many of
12:33:49:45 us are balancing family demands with work demands
12:33:49:45 and having this during a normal workweek is
12:34:08:47 important. Michigan started about 2017 and we will
12:34:08:47 continue that. This website we have easy links to
12:34:08:47 family care providers and summer in St. Louis is a
12:34:08:47 great time. If you have family that would like to
12:34:08:47 come with you, you can attend the conference and
12:34:08:47 they can do great things here as well.

12:34:09:92

12:34:12:55 So to finish up here, I won't saying meet me in St.
12:34:20:53 Louis. I might do that when we have the conference,
12:34:20:53 but I hope you will all meet me in St. Louis next
12:34:20:53 July and if we can't do it here, next July, we will
12:34:26:47 do it when it's possible, possibly summer 2022. So
12:34:26:47 thank you very much.

12:34:35:93 >> Thank you so much, Dan, and I think we are all
12:34:35:93 hoping we can have a play date in St. Louis in the
12:34:35:93 summer 2021. Our next speaker is Maia. She's a
12:34:40:70 professor at the University of South Florida, and
12:34:40:70 she will be talking to us about issues of inequity
12:34:56:30 and specifically how they have been presented during
12:34:56:30 COVID-19 and she will talk a little bit about her
12:34:56:30 envision sustainable communities course and how to
12:34:56:30 interface with student learning. Without further
12:34:56:30 ado.

12:34:59:89 >> Thank you, Kim, and good afternoon. Three crises
12:35:12:88 are on my mind today, COVID-19, criminal justice and
12:35:12:89 climate change. What I would like to do today is
12:35:12:89 share experiences that I have had with a graduate
12:35:17:39 training program that brings together environmental
12:35:17:39 engineers, anthropologists and marine scientists to
12:35:24:05 work with communities on food, energy, and water
12:35:28:30 solutions. In particular, I draw from the work of a

12:35:30:97 doctor, a recent graduate from the program and a
12:35:40:84 required course that I teach that Kim just
12:35:40:84 mentioned. I will try to link COVID-19, criminal
12:35:40:84 justice and climate change to the discretions on
12:35:40:84 systemic biases in environmental engineering
12:35:50:91 education.
12:35:50:91
12:35:50:91 Today, a million hundred 4408 people have died from
12:35:54:13 COVID-19. In the U.S., that number is 222,831.
12:36:02:85 Many of us have lost loved ones, including direct
12:36:06:57 family members of our strong coast program. Thanks
12:36:12:78 to the work of the BU center for antiracist research
12:36:17:14 and the Atlantic, the website provides COVID-19 data
12:36:28:22 by race. In the U.S., black people die – black
12:36:28:22 people – for every 100,000 black persons, 100 black
12:36:31:41 people die. The number for white persons is 44.
12:36:36:96 That's a 2.3 times difference. The trauma of of
12:36:51:91 COVID-19, on the 25th, 2020 we witnessed the killing
12:36:51:91 of an unarmed black man. The middle of this mural
12:37:07:97 in Minnesota includes names of other black Americans
12:37:07:97 like Breonna Taylor, who have been killed by white
12:37:07:97 police. Blacks in the U.S. make up about 13 percent
12:37:07:97 of the U.S. population, but they account for 36
12:37:13:70 percent of the unarmed persons shot by police
12:37:17:93 between 2015 and we need to support – we need
12:38:54:43 diversity and we need inclusion to make sure that
12:38:55:55 there is meaning – meaningful dissipation. We need
12:38:59:16 inequity to ensure people have resources. But we
12:39:04:20 need justice to break down the structures and
12:39:09:49 barriers that harm and limit who is present and who
12:39:11:73 –.[AUDIO LOST]
12:39:52:23 >> Watching videos by Doctor Robert Fuller. And
12:39:55:83 Josh presented these slides showing our 275 and I-4
12:40:02:64 that had pretty much held to disrupt black
12:40:05:26 communities in Tampa. In my time is up but I will
12:40:15:64 take one more minute, if I can. And students
12:40:15:64 learned that one of the most productive parts of
12:40:25:44 Tampa, Central Avenue, the business part of the
12:40:25:44 black community was one of the areas destroyed when
12:40:29:19 it came through. As we go through the envision
12:40:35:45 force, students are really asking questions about
12:40:40:12 our field. Some are graduate students who had never
12:40:40:12 heard of the way in which our infrastructure is
12:40:46:32 impacted certain communities. We have been able to
12:40:55:15 bring speakers in and we are asking questions to
12:40:55:15 think of what our future looks like. Over the
12:40:55:15 summer, our strong program partnered with Berkeley
12:41:01:50 to host a workshop on co-creating knowledge to
12:41:09:82 include energy and water systems with indigenous
12:41:09:82 populations. And I believe with this quote from a
12:41:13:45 doctor who says everything is a living system and is

12:41:18:43 a living system of interrelationships with man as an
12:41:21:22 integral part of the hope. And I speak about black
12:41:38:64 folks in this presentation, but really and truly,
12:41:38:64 it's black and brown folks, and in particular,
12:41:38:64 indigenous folks in the U.S. and their access to
12:41:38:64 food, energy, water, at this time, have been really
12:41:42:53 just as horrible and horrific as the experiences
12:41:44:87 that we have seen and inequities in the black
12:41:51:14 communities, and I think it's a time for our field
12:41:51:14 to really look at this day of Jedi culture and how
12:42:07:35 do we learn from others because in some cultures,
12:42:07:35 the way we do science does not even resonate with
12:42:07:35 the way in which they think of things like water.
12:42:07:35 Thank you.

12:42:14:13 >> Thank you so much. That was an excellent summary
12:42:15:85 of kind of what we have been dealing with and how we
12:42:21:61 need to think about moving forward to remove some
12:42:26:59 barriers and inequities in our built infrastructure.
12:42:32:43 Our final speaker is Marc Edwards. He will be
12:42:36:58 talking about how some of his longtime work and
12:42:40:45 water can be applied during the pandemic. Without
12:42:47:43 further ado, take it away, Marc.

12:43:00:25 >> DR. EDWARDS: Thank you, Kim, and I appreciate
12:43:00:25 this opportunity to provide perspectives on
12:43:00:25 engineering ethics and citizens science and
12:43:00:25 underserved communities. And these are based on
12:43:06:68 experiences at the Virginia Tech U.S. water study
12:43:06:68 team over the last 15 years, both pre-and now
12:43:09:40 post-COVID. When we started on this journey about
12:43:20:42 15 years ago, I realized there were megatrends we
12:43:20:42 needed to address.

12:43:27:48
12:43:27:48 And across society, that included the fact that the
12:43:31:04 U.S. water was not a human right. You get the water
12:43:32:52 that you can afford. And we were starting to live
12:43:41:77 in a post-truth world and we were observing
12:43:41:77 declining public trust and all across the world in
12:43:45:82 the U.S. we have out-of-control debt in shrinking
12:43:52:92 cities and towns. And within academia and even
12:43:55:20 AEESP, we have climate change. Hyper competition
12:43:57:85 and reverse incentives and oversupply of PhD's were
12:44:15:18 jobs, and we also have a top-down grand challenge
12:44:15:18 funding model, which is good for solving grand
12:44:15:18 challenges, but not so good for solving day-to-day
12:44:15:18 problems, practical problems that our communities
12:44:16:93 are facing. Now post- COVID, we can advance – we
12:44:24:62 are continuing to see declining public trust and
12:44:32:85 just spiraling out of control which pleases
12:44:38:40 communities and towns in impossible financial
12:44:38:40 situations.
12:44:42:42

12:44:42:42 One element what we do is training.
12:44:42:92
12:44:45:29 And so students in our program you choose to do this
12:44:49:21 as a hobby, they take a class, and engineering
12:44:57:17 ethics in public which was originally codesigned by
12:44:57:17 myself and another doctor. We are continually
12:45:01:09 engaged in case studies and vulnerable communities
12:45:04:19 dealing with crazy ethical dilemmas that bother –
12:45:19:53 boggle the mind and on this journey, we engage in a
12:45:19:53 lot of personal reflection and introspective as to
12:45:19:53 what our role is exactly in society as scientists
12:45:31:53 and engineers. And for students involved in this,
12:45:31:53 they do a lot of thought about public storytelling
12:45:31:53 documentaries, and if you want to see examples of
12:45:31:53 that recently from our crew, I will be happy to
12:45:35:10 provide you with links.
12:45:35:10
12:45:36:62 Practically, our work in communities has been
12:45:39:95 relevant, the exposed environmental crimes occurring
12:45:48:27 in Michigan resulted in federal emergency
12:45:48:27 declaration and elevated the profile of citizens
12:45:50:47 science for Flint resident Walters and across
12:46:01:67 society as old and today, Flint has received more
12:46:01:67 than \$1 billion in relief, and we've also had very
12:46:03:75 high profile successes and many other communities
12:46:09:76 just as a couple of examples.
12:46:09:76
12:46:12:42 Saint Joe, Louisiana, where Adrian worked and we
12:46:24:24 worked with her to expose led problem there which
12:46:24:24 resulted in a public health emergency and
12:46:26:31 immobilization of millions of dollars in relief.
12:46:32:26
12:46:32:26 Recently, we expose a problem with illegal pesticide
12:46:32:26 dosing to the water of Denmark, South Carolina
12:46:41:31 because they could not afford to do the cheapest
12:46:41:31 legal alternative to control the problems. And, you
12:46:46:61 know, there's been many other successes, but for
12:46:54:33 every success, there is 90, 95 percent of the
12:46:54:33 communities we work with, we expose – they have
12:46:57:61 really bad and expensive water and nothing illegal
12:47:00:69 is actually happened.
12:47:04:90 >> So we have post what we are realizing is the
12:47:15:41 future is unfortunately very much in need of this
12:47:15:41 kind of work because Flint, Denmark, Saint Joe, we
12:47:24:21 are ahead of the curve in terms of going bankrupt,
12:47:24:21 and their past is the future of many of our cities
12:47:24:21 and towns. And many of us are following in the
12:47:27:50 footsteps and as a result of COVID in financial and
12:47:34:18 emotional stress. We will continue applying our
12:47:39:70 bottom science model that seeks and speaks truth
12:47:39:70 that usually when communities only find they have

12:47:43:28 very expensive and crappy water, but every now and
12:47:52:25 then, we do expose some unethical or criminal
12:47:52:25 behavior, and that's very, very disconcerting. We
12:48:04:39 judge our success by first, the quality of the
12:48:04:39 science that we do and secondly the problems that we
12:48:04:39 solve and exposed in these communities underserved
12:48:04:39 by science, we calculated that our work is directly
12:48:11:35 or indirectly led to over \$5 billion of relief to
12:48:29:19 date to these communities and it's put a spotlight
12:48:29:19 on infrastructure and quality and engineering
12:48:29:19 ethics. It's given us all a sense of purpose, which
12:48:29:19 is useful in today's world both for us and our
12:48:29:19 citizens and science collaborators. So with that,
12:48:31:12 thank you.

12:48:43:83 >> Thank you so much, Marc, and thank you to all of
12:48:43:83 the panelists. I think this was an excellent,
12:48:43:83 excellent panel today, and our next step is to just
12:48:47:72 open it up for questions and discussions. I would
12:48:49:31 like all of our panelists to share your video so
12:48:53:41 that we can get you all on screen and start our
12:48:56:70 discussion. So I wanted to start with the question
12:49:02:13 to all of you, and you can take it one by one or if
12:49:05:81 someone else – you don't have to but I encourage you
12:49:08:68 to – related to the scene of convergence and what
12:49:15:69 you have heard, I would like you to address how can
12:49:20:43 we make our research and our research more
12:49:24:12 convergent. It is a big deal right now related to
12:49:27:49 what you're doing.

12:49:34:88 >> I will start off here. Get out of your building
12:49:44:30 and go find someone on campus who is thinking about
12:49:44:30 something that is important to you and is important
12:49:44:30 to them but you are not in the same field. To me
12:49:54:88 that my going over to the school of social work and
12:49:54:88 talking to people who studied public health because
12:49:54:88 they had ideas and perspective. We were thinking
12:49:54:88 about indoor environmental quality. In the
12:49:57:60 perspectives were eye-opening to me. We had the
12:49:57:60 same wall but a totally different approach. I think
12:50:02:84 stop talking – environmental engineer is a great
12:50:10:15 community but even with that, I think we can do
12:50:10:15 better to get across campus.

12:50:15:28 >> I want to add to that. I agree. I think and
12:50:18:35 interview of the faculty members across six
12:50:21:93 institutions we did not just do environmental
12:50:21:93 engineers. It was nursing. We really share common
12:50:28:58 experiences and even in the delivery of education,
12:50:36:40 there are tips we can learn from other fields and
12:50:36:40 experiences and can share. The interdisciplinary
12:50:44:20 not being in our own area but talking, and these
12:50:44:20 conferences are very important. And we go and we
12:51:14:16 listen and we learn in the types of challenges

12:51:20:48 people have require all types of debt I think we
12:51:31:52 have to start approaching it a little differently
12:51:31:52 and giving ourselves opportunities to engage solve
12:51:43:07 very wicked problems but we have to do it with
12:51:43:07 communities as partners and we have to do with other
12:51:43:07 companies and businesses everyone because COVID-19 –
12:51:50:56 we are all struggling within our own universities
12:51:50:56 and cities to barely survive right now.
12:52:04:81 >> Thank you. Susan, were you trying to jump in
12:52:04:81 with the other thing I was going to say is reach out
12:52:09:82 broadly with the communities but also outside the
12:52:14:42 U.S. listen to the experiences, especially of our
12:52:20:54 international students and where they coming from
12:52:20:54 and what are they experiencing and learn from them
12:52:33:42 because I think we tend to think that it's a – often
12:52:33:42 is a one-way street but it's not. We can learn as
12:52:33:42 much from them in terms of experiencing what they
12:52:39:76 bring and how do we work together. As has been
12:52:47:52 said, to make this more just and more equitable.
12:52:47:52 Any more sustainable.
12:52:52:90 >> All right. Marc?
12:52:55:93 >> Just in the word of a great anthropologist,
12:53:04:60 Margaret, she said to remember we are a part of
12:53:08:70 society and that you should set yourself apart from
12:53:11:76 society.
12:53:17:69 >> Excellent. Thank you so much. I would like to
12:53:20:26 ask one more question to the panel before we open it
12:53:26:13 up. I know a lot of you have experience in trying
12:53:33:89 to make sure you are teaching and doing everything
12:53:33:89 in an equitable way. That's what a lot of you spoke
12:53:33:89 about today. So I would ask everyone to just think
12:53:40:52 of two things. One, what you will consider the
12:53:40:52 absolute best practice to and then, also something
12:53:52:94 that you think will work. Something a child of his
12:53:56:29 lot was a great idea but it fell flat.
12:54:13:55 >> -jumpIn. I'm not sure if I'll answer both
12:54:13:55 questions, but I think something that I find works
12:54:19:35 is potentially asking students to provide context,
12:54:27:70 some sort of cultural or geographic context is
12:54:27:70 relevant to their experience, and then sort of do
12:54:31:71 some work to look at how to bring about into the
12:54:39:57 narrative into the question or something like that.
12:54:48:33 And to be really cognizant of people's access to
12:54:55:76 resources and the type of language one might use in
12:55:00:35 describing one's access to resources and also being
12:55:04:97 really grateful to have diverse perspectives present
12:55:07:25 to.
12:55:15:23 >> I am also a chair of the department and its three
12:55:15:23 programs. Construction management and environmental
12:55:19:42 engineering and I sort of tried to really think
12:55:23:99 about not just doing interviews with different

12:55:23:99 faculty members but also look over the spring and
12:55:26:11 the summer and now the fall for what faculty are
12:55:29:12 really successfully connecting with their students.
12:55:35:79 In the challenging environment, really getting them
12:55:35:79 to interact on the online environment. What I find
12:55:43:10 is really – even the faculty the answer the surveys.
12:55:43:10 I found they were more empathetic kind of
12:55:51:17 understanding faculty, the ones who can really
12:55:51:17 communicate with their students or even cared about
12:55:56:95 their students and offend the ones that are very
12:55:56:95 successful in getting their students to attend their
12:56:01:15 online and really learn and really ask those
12:56:01:15 questions are the faculty that listen. They start
12:56:09:34 off their online classes with how are you doing, do
12:56:09:34 you have everything you need, right knee separately
12:56:11:67 and if you need. I will get resources to you.
12:56:17:46 Thought continued learning, it really has to do with
12:56:20:72 the personality of individuals and do they really
12:56:22:53 care and I think when you do that, so much more can
12:56:30:93 be accomplished. In your research, and your
12:56:30:93 learning environment.
12:56:34:59 >> I will remind the panelists that if you are not
12:56:41:49 speaking please remember to mute your background.
12:56:43:56 >> Anyone else want to – I may have a little bit of
12:56:52:98 background noise. It's recess in my house right
12:56:52:98 now. But the thing I would say is never waste a
12:57:05:63 good crisis. One of the things we've been forced to
12:57:05:63 do that are doing well. And with the online
12:57:05:63 teaching, the opportunity to answer a question by
12:57:05:63 typing it in the chat, I have had students answering
12:57:30:88 my question to recoveries. In a class and answer
12:57:30:88 them or a group exercise where we say does anyone
12:57:30:88 have the right – have an answer they want to share?
12:57:30:88 They can chat it just to me, that student who
12:57:30:88 doesn't want to say in front of the whole class the
12:57:30:88 answer because they are afraid they are wrong, we
12:57:30:88 have new tools available that are working in ways I
12:57:30:88 had not appreciated how valuable they were going to
12:57:30:88 be. Something that hasn't worked well, and class
12:57:46:31 demonstrations. I love to take a pH meter to class
12:57:46:31 and do something. It's not translating as well as I
12:57:46:31 was wanted to. So I am sure that my colleagues are
12:57:46:31 here as well as the ones online has done some things
12:57:50:71 that are working really well. I would love to get
12:57:50:71 some of those best practices.
12:57:58:27 >> Go ahead, Susan.
12:57:58:27 >> So this goes to my comment about participation in
12:58:13:38 focusing on mental health. Back in spring, I
12:58:17:29 switched and I was still associate chair. The first
12:58:22:46 participation question that I asked which was kind
12:58:24:20 of changing the format from in class activities and

12:58:35:68 minute papers was just what can I do to hula fit as
12:58:35:68 your instructor and as associate chair. I was
12:58:51:32 surprised how many students responded. Some
12:58:51:32 responded nothing and some responded with some
12:58:51:32 concerned about my family back in Columbia. I'm
12:58:51:32 concerned about this. And that started kind of a
12:58:59:74 path that I have continued since March on these
12:58:59:74 participation questions. They are often just
12:59:04:26 reflective and don't play psychiatrist. I'm not a
12:59:09:94 psychiatrist. But I try to get them to think
12:59:09:94 through and I tried to get them to think about some
12:59:18:32 of their successes and it's okay you got a
12:59:18:32 challenge. What were your challenges and successes.
12:59:18:32 I try and get them – what made you laugh this week?
12:59:22:74 What made you smile? And I share my challenges.
12:59:30:64 And what I found was it opened up communication with
12:59:35:29 students but probably wouldn't have communicate with
12:59:38:65 otherwise because in a class of 60, they are not
12:59:41:48 going to communicate with me. I give them the
12:59:45:49 option they don't have to answer to it's been really
12:59:50:16 interesting to see this. I've got a student in
12:59:55:91 Mongolia – there's a student in Mongolia sampling
12:59:59:27 water. And I have learned about for – her. I think
13:00:09:81 those of been connections that wouldn't have
13:00:09:81 happened otherwise. It helps me feel connected to
13:00:15:30 them and I think it helps them feel connected to me
13:00:17:69 and also to the University. And when I seen
13:00:22:99 students struggling, it gets – gives me an
13:00:28:96 opportunity they go to the counseling services and I
13:00:28:96 can give them information about that. So what's
13:00:34:67 been something I didn't anticipate, kind of like
13:00:38:22 what Edward said, the polling is also another great
13:00:45:87 way of getting students to be able to answer
13:00:45:87 questions in a nonthreatening way because it's all
13:00:58:40 anonymous. So they can answer questions, and it's a
13:00:58:40 great way to get almost instant feedback on what
13:00:58:40 they understand. So using these tools are great
13:01:02:12 opportunities. And we didn't have these before.
13:01:08:28 >> Thank you. Those are great. I want to switch
13:01:11:88 gears. Some of these similar questions earlier and
13:01:16:88 some of you are submitting questions in real time.
13:01:21:25 So I will read one out from the synchronous question
13:01:28:40 and I will ask – I think Colleen has the ones that
13:01:28:40 were submitted ahead of time and I will ask her to
13:01:33:38 pose a few of those to the panel. But I see one
13:01:36:79 saying how do you manage relationships with the
13:01:42:25 people and communities you're working with? Given
13:01:43:80 weird tied to an academic calendar, the students are
13:01:53:64 responsible but not over the entire project. This
13:01:53:64 whole idea of continuity and kind of time. I like
13:01:55:98 this question because there are certain realities of

13:01:59:74 our jobs, our academic jobs, that sometimes may pose
13:02:05:81 a challenge or we are trying to get engaged with
13:02:09:99 communities. Any of you want to jump on that for.
13:02:13:56 >> I could start. I would say that we are lucky to
13:02:19:31 work with anthropologists quite a bit and one thing
13:02:23:21 I learned from them is that they sort of spent a
13:02:28:64 long time with communities. So he is a co-PI and
13:02:41:14 has been working in police for over 20+ years. And
13:02:41:14 I think your relationship evolves and as a faculty
13:02:50:38 member you can keep evolving with the community and
13:02:50:38 with your research and you bring in other people and
13:02:52:39 you don't leave. Whether we are in Belize or here
13:02:56:45 in Tampa, we are not coming in and leaving. Right
13:03:01:81 now, it's – it is a little challenging to sort of be
13:03:08:96 engaged everywhere. I have projects in Barbados and
13:03:15:76 Belize in the past few months – I have personally
13:03:20:52 not been able to engage in all of those places, but
13:03:24:96 it's not that I won't – so I do think we need to
13:03:39:18 think about long-term commitment. This is probably
13:03:39:18 easier if you have places you work with Listeria
13:03:39:18 University. Because there is a cost for
13:03:40:76 international work and so when you are close to your
13:03:49:92 university, I think you can establish those
13:03:49:92 long-term relationships. We are a community engaged
13:03:56:26 in diversity and so since 2006, we have had that
13:03:56:26 mindset as an R1 University. So to answer Jean's
13:04:05:91 question, I think look at this is probably a
13:04:05:91 long-term thing, and it may be that you are engaged
13:04:12:28 somewhere and it's just not going to work out and
13:04:12:28 you can walk away. Because there are so many
13:04:15:41 challenges and politics and all different things
13:04:24:64 involved. And at some point if you need – if you
13:04:24:64 need to walk away, you walk away.
13:04:24:64 >> Thank you. I will ask Colleen and maybe ask some
13:04:33:87 of the questions that were submitted prior to this.
13:04:37:73
13:04:37:73 >> Okay. We have a question from Giuliano. She
13:04:48:15 says what are some steps we as scholars, or
13:04:48:15 specifically scientists and engineers – can take to
13:04:49:21 become proactive against systemic biases in our
13:04:53:81 communities and workplace?
13:05:03:90 >> I don't want to hold the conversation but I think
13:05:06:69 for many people of color who – since May, we have
13:05:16:84 probably been meeting with other black faculties,
13:05:20:97 staff, and students across other universities and
13:05:29:76 then we have been meeting with each other across the
13:05:29:76 country. And so I can think of across the country,
13:05:29:76 there is Doctor Monica Cox from Purdue Charlotta
13:05:36:19 Berry and some other faculty who have put together a
13:05:40:15 website and a movement that more or less we have
13:05:43:81 called black engineering.org. And they have a call

13:05:47:19 to action that literally lays out things academic
13:05:51:79 departments and universities can do to address
13:05:55:15 systemic biases within academia. So I think
13:05:59:02 resources are out there. And also, you know,
13:06:04:48 foreign groups so I know at USF we had a steering
13:06:08:43 committee that's been meeting every week since June,
13:06:23:52 and we have started a series, and enlightenment
13:06:23:52 series with some of the faculty and they put it
13:06:23:52 together. It's not a recorded session, it's sort of
13:06:23:52 close to USF but faculty, staff, and students can
13:06:29:93 attend and it's an opportunity to learn from each
13:06:29:93 other and learn from the experts in this field who
13:06:33:19 are all, you know, in our own universities and
13:06:38:67 started to be open and honest and really treat this
13:06:38:67 time as a time to learn. And if you don't have
13:06:41:69 faculty of color in your institution we are on
13:06:45:40 twitter. So reach out.
13:06:54:21 >> Thank you.
13:06:54:21 >> I would like to add to that. I think the
13:06:59:66 experiences and how we think of some of these things
13:06:59:66 are going to be very different where we teach. I
13:07:04:51 have changed universities and it's very different
13:07:09:48 now and I'm now at the largest in the country. We
13:07:22:20 have to – the only way to get through this is to
13:07:28:12 understand what's going on only through forums and
13:07:32:80 talking like Maia said. I'm still learning and I'm
13:07:38:17 black and learning. Every time I talk to someone at
13:07:42:65 every different institution. Creating those spaces
13:07:51:98 in the groups and all of us getting together is
13:07:51:98 really important. Every time you learn something of
13:07:57:19 contents will be different everywhere you go. I
13:08:00:82 just want to share that that is really different in
13:08:01:16 every institution.
13:08:07:68 >> All right. Anyone else?
13:08:19:19 >> I just want to take a minute. I am the moderator
13:08:19:19 but I will throw in a little bit here just to say
13:08:19:19 that I do think part of the question was that they
13:08:21:50 specifically – I think in academia, all of us need
13:08:30:39 to be very aware of systemic biases that are
13:08:34:45 occurring through just this morning I had a meeting
13:08:37:39 with someone in the industry and they were telling
13:08:41:69 me the biased training they had and they have had to
13:08:48:78 step back if you are comfortable just talking about
13:08:57:86 this idea of inherent bias in academia because it
13:09:01:61 doesn't exist. I was visiting the University and
13:09:10:15 had a long conversation with a black female faculty
13:09:10:15 member there who just told me really heartbreaking
13:09:13:20 experience just about that she had encountered.
13:09:24:50 Many of the University and how it was really
13:09:24:50 weighing on her own to address some of the buyers
13:09:33:88 are inherent bias in academia, what are your

13:09:35:84 experiences, and can you talk about if universities
13:09:39:39 are doing some really neat things, I would love to
13:09:42:92 hear from it.

13:10:02:48 >> I will go first year on this. I would say one of
13:10:07:37 the first things with this is admitting that you
13:10:07:37 have a problem and I think all of us – this has been
13:10:13:72 a year for people who did not realize there was a
13:10:13:72 problem to admit that there is one. And now we have
13:10:18:34 to take that next step and do something about it.
13:10:18:34 And I would say most of our universities have – are
13:10:33:34 fairly progressive places and want to do the right
13:10:33:34 things. The other thing I would say – this is a
13:10:33:34 reflection of where I am. We are full of really
13:10:33:34 busy people. And we need our leadership to
13:10:33:34 structure our commitments so that we can put the
13:10:38:90 time where we are supposed to. We have some great
13:10:40:42 programs throughout the year, one in the spring, day
13:10:47:52 of dialogue, which I have attended and I've heard
13:10:47:52 good stories and learned lessons and best practices
13:11:09:60 but it's totally optional. Our Dean will give us
13:11:09:60 the day off for teaching for that day to participate
13:11:09:60 but I think we all need to look to the leadership to
13:11:09:60 say this is where our priorities are and we will
13:11:09:60 free up the time from your teaching and research
13:11:09:60 because we want you to do this. And so we've got
13:11:19:90 great programs but you can think about all the great
13:11:19:90 talks on your campuses and programs that you don't
13:11:19:90 participate in. This is one we should all be
13:11:19:90 participating in and I think we need to look for our
13:11:19:90 leadership to make it possible for us to do that and
13:11:19:90 maybe even require us to and I think we would do it.
13:11:19:90

13:11:28:28 >> Thank you, Dan.

13:11:28:28 >> I would add that it's this executive order that
13:11:32:41 the president released, I think, in mid-September
13:11:35:58 spanning some of the diversity and inclusion
13:11:37:92 training is happening in federal agencies we seen
13:11:43:59 some universities sort of saying that we are going –
13:11:47:21 we are committed to diversity and inclusion but we
13:11:47:21 are going to review how we do that in our
13:11:55:55 institution because of this fair federal grant money
13:12:01:90 is going to be withheld. And when you read the
13:12:05:43 language that was placed in the executive order and
13:12:07:62 the types of things they are talking about what
13:12:13:23 people are speaking about when you're going to these
13:12:13:23 trainings, they are so far from the truth, I think,
13:12:22:44 and the types of things that diversity and inclusion
13:12:22:44 offices really do. And it's unfortunate that our
13:12:30:32 professional organizations, our universities, have
13:12:30:32 not screamed out loud that this is – this should not
13:12:37:65 happen. I tweeted about it and somebody mentioned,

13:12:37:65 you know, universities file a lawsuit when there was
13:12:44:29 a bad international student. Where is that right
13:12:46:48 now or that training that impacts how women,
13:12:55:42 function in academia. How minorities, how all sorts
13:12:57:53 of people function in academia. Where's that
13:13:03:27 outcry. So what you are seeing is the persons who
13:13:12:40 have been studying this, doing this as part of the
13:13:12:40 research, being threatened by this right now and
13:13:15:57 also thinking whether funding is going to disappear.
13:13:15:57 I would say that at USF, we put out half a million
13:13:21:10 for research on blackness and antiblack racism and
13:13:27:99 are awarded 23 proposals that have to have some
13:13:30:74 component to do the research. Look at systemic
13:13:33:53 biases. And it sort of – there was so much
13:13:41:53 excitement when that was released and those refunded
13:13:41:53 on September 1. And now it's sort of a statement for
13:13:48:60 the president that we are committed to diversity and
13:13:48:60 inclusion, but we are also reviewing sort of the
13:13:58:46 work that we do. So it's sort of this lukewarm
13:13:58:46 response and sort of like why are we up in arms. We
13:14:03:54 are the female faculty who also have benefited this
13:14:06:76 work. And have in our discipline, we are at 50
13:14:12:75 percent women in terms of undergrad, grad students
13:14:22:78 and close to assistant professors. So where is that
13:14:27:14 Christ?
13:14:27:14 >> Excellent point. Anyone else? So I will – I
13:14:42:75 think we have about 15 minutes left, and this is an
13:14:42:75 interesting conversations I do it to get some other
13:14:42:75 questions from – I will ask one and a chat and I
13:14:46:31 will ask Colleen to Q1 up from the previously
13:14:49:69 submitted ones so there's a question in the chat I'm
13:15:02:12 going to paraphrase but basically, how do you engage
13:15:05:15 meaningfully with communities as full partners,
13:15:11:44 particularly may be an assistant professor, how do
13:15:21:41 you do that when the risk to your career may be
13:15:21:41 great. So how do you fix what they are calling a
13:15:21:41 perverse incentive in academia?
13:15:25:47 >> Mark, do you want to go? This should be an
13:15:36:39 article coming out sometime soon, I hope and it's
13:15:43:86 based on workshops that we held at AEESP conference
13:15:43:86 last year. And it's really a lead by the University
13:15:56:70 of Colorado Boulder and it looks like – we had about
13:15:56:70 60 attendees and many were assistant professors and
13:16:18:75 what he went to do in academia and it speaks a lot
13:16:18:75 to community engaged work. So I think for assistant
13:16:18:75 professors and for our students, there's lots of
13:16:18:75 interest in this and something that the tenure
13:16:21:81 process needs to think of how you value that because
13:16:27:64 it's not going to reduce the same number of papers
13:16:32:66 per year because community work takes time to build
13:16:32:66 those relationships. Many times, even the

13:16:40:26 publications think that's not real science. This
13:16:46:97 doing that kind of work sort of labeled as activism
13:16:46:97 in some cases and we shouldn't be doing that. But I
13:16:50:92 think COVID-19 and all the social justice movements
13:16:55:61 have really offended all of that. And hopefully the
13:16:59:15 funding agencies commit to supporting faculty to do
13:17:04:32 this work and hopefully assistant professors get
13:17:09:31 that funding.
13:17:09:31 >> I agree. And I also want to hear who have served
13:17:16:17 from chairs or leaders or even promotion and tenure
13:17:19:34 committees. Are there – is there a change in the
13:17:25:12 conversation – it's important for us to prioritize
13:17:34:15 collaborative research into disciplinary research.
13:17:38:70 We have to think of how we prioritize that in the
13:17:45:53 message we get to the early faculty, what that looks
13:17:45:53 like. Because if we don't send a clear message that
13:17:50:44 we value that kind of work our early career faculty
13:17:55:18 members won't be in their best interest to do it and
13:17:57:60 I know some of my colleagues have said, they told
13:18:10:53 the junior faculty, don't get involved in a lot of
13:18:10:53 community level work until you get tenure and the
13:18:10:53 truth is you start to lay the groundwork for your
13:18:10:53 career while you are going for tenure so it's
13:18:16:92 something I think we should be encouraging a lot
13:18:16:92 earlier, but it will make sense unless the promotion
13:18:21:93 tenure committees and the chairs in the Dean's and
13:18:30:91 everyone else unless we value that. I would like to
13:18:30:91 hear about some conversations you're having your
13:18:30:91 universities around this if any. X I can try to
13:18:38:65 answer some if that is a chair because it's
13:18:38:65 challenging trip is challenging because at the same
13:18:38:65 time a lot of work. I did a lot of that in the
13:18:49:92 early start. I did get criticized for that to be
13:18:49:92 honest with you. Too much service for the
13:18:49:92 community. So it can be damaging we have to strike
13:19:03:38 a balance. I have seen better recognition of
13:19:03:38 service activities over the years from different
13:19:03:38 institutions. And the sessions where they integrate
13:19:17:19 recognition of that. So that's good news. It's not
13:19:17:19 as bad as it used to be my opinion. But we have to
13:19:17:19 be very careful. We don't want to ill-advised and
13:19:17:19 then hurt their tenure and so we have to strike a
13:19:25:69 balance and what we often do is say if you are going
13:19:25:69 to do service, be strategic about it. Ensure you
13:19:27:56 can get good quality publication out of that service
13:19:40:21 work, but it takes a longer time to do this. In the
13:19:40:21 meantime what you can do is until you get some
13:19:40:21 results you can publish on methodologies – I just
13:19:44:29 said this to faculty the other day. I know you
13:19:44:29 won't get your result every two years but can you
13:19:47:52 publish methodology and strategies and working with

13:19:53:46 communities and different things like that? So you
13:19:53:46 are not – you are making some progress. And there
13:19:57:74 was another time – if you concentrate on one thing
13:20:20:80 in your research and that's it. You focus and you
13:20:20:80 don't do anything else. And I disagree. You have
13:20:20:80 to do that interdisciplinary work and it's okay to
13:20:20:80 have two tracks, kind of your research and your sort
13:20:20:80 of service track that you can publish on and grants
13:20:20:80 may come in for one track and not the other track
13:20:22:32 and you can wait. It's okay to be an expert in two
13:20:25:22 areas and one can be sort of that service and one
13:20:28:50 can be your research. But it's been extremely
13:20:33:36 challenging – it's not just the chairs. You have to
13:20:36:25 go all the way up the university level for them to
13:20:41:44 recognize how important service is. I have seen
13:20:41:44 more where you submit grants and now they've added a
13:20:51:43 component that says what is your contribution to
13:20:51:43 community work? So there is an understanding that
13:20:57:63 that's important and we are beginning to count that
13:20:57:63 more. But it's a challenging area.
13:21:02:71 >> Thank you. And.
13:21:04:28 >> – Marc has his microphone on mute, but I think he
13:21:17:66 was saying something.
13:21:17:66 >> I didn't really want to talk.
13:21:25:32 >> I think the main thing is you really have to
13:21:25:32 manage expectations as to what your role is in the
13:21:25:32 community and the partnership is – for us, at least
13:21:35:39 as a scientific partnership that seeks to answer
13:21:35:39 scientific questions, and I think personally if you
13:21:42:45 were going to fully partner with the community as an
13:21:42:45 activist or an advocate, that's a very dangerous
13:21:44:52 trend for an academic. And so, you know, the issue
13:21:49:97 is we are partnering on this issue and we have
13:21:53:86 neutral scientific interests and at the end of the
13:22:04:88 day the data is what it is and I understand that
13:22:04:88 some folks like scientists are hoping the data will
13:22:04:88 show a certain outcome and will be happy when it
13:22:18:49 does and will be unhappy when it doesn't. But that
13:22:18:49 is the nature of our partnership with communities,
13:22:18:49 and I do think – new word fully partner implies that
13:22:23:34 perhaps you are thinking about a role as an advocate
13:22:23:34 or activist and that's completely different than
13:22:26:36 what we do.
13:22:28:12 >> Thank you. I do want to get one more question
13:22:33:17 in. We only have three minutes. I'm told we have
13:22:37:65 to end at 125 and is 122. I do think this is a good
13:22:48:33 question because I think it's from a student and it
13:22:48:33 says what can students do in order to get the most
13:22:48:33 out of their lab courses. The student opted out of
13:22:48:33 the lab and took it next semester because they heard
13:22:52:49 it was hard to grasp the material BL zoom and I

13:22:54:72 asked that during Susan's presentation. You want to
13:23:00:26 give a quick answer before we have to end?
13:23:06:67 >> I'm going to say – is true of all courses –
13:23:06:67 engaged in the material. If you can – I've had
13:23:13:40 students – the kids are behind me. Try to do – if
13:23:22:80 you've got something like that, think out of the
13:23:22:80 box. Don't follow what you were told to do
13:23:26:15 step-by-step. Think about what else can you do with
13:23:32:63 these kids? What else can you do with these tests?
13:23:35:26 Ask questions. I think that's true across the board
13:23:42:71 and think of other ways that you can use this
13:23:44:96 information. Can I answer that quickly? I found
13:23:51:41 kids are very ingenious. We have a field study we
13:24:02:69 are not able to get field studies for all of our
13:24:02:69 students, but we were quite shocked with what some
13:24:05:41 students find in these innovative engaging videos on
13:24:12:98 some field experiences, and we were able to use
13:24:12:98 that, integrate that with monthly reports when they
13:24:15:39 were still learning. There is a lot on the
13:24:23:57 Internet, thank goodness. It's really not just up
13:24:23:57 to the student to make the engagement and get the
13:24:23:57 same experience. The faculty has to be a part of
13:24:26:65 that should have to engage you. Thank God Susan did
13:24:39:68 it. So it's between the faculty, but also they
13:24:39:68 students should search online for every kind of
13:24:39:68 video giving you a bit more experience and learning
13:24:44:41 on that content if you can.
13:24:56:33 >> I created for my students – the lab students were
13:24:56:33 so happy being outside and they said they felt like
13:24:56:33 they were doing something productive and they were
13:24:56:33 on campus. Many of them were on campus. I created
13:25:00:14 a scavenger hunt for my other class where – with a
13:25:05:01 whole list of water and wastewater infrastructure.
13:25:09:98 And they can do it either online or in person. They
13:25:09:98 can find similar infrastructure in their area just
13:25:17:14 to try and find ways to get them engaged in the
13:25:20:65 material. So engage your students and engage in the
13:25:31:35 material. Talk to the faculty. Don't be afraid.
13:25:32:91 >> Excellent. All right. It is 125. I've been
13:25:37:09 told one of my main jobs is to make sure we and on
13:25:40:35 time so that we respect everyone's time and we can
13:25:51:95 have ample time to kind of talk about what the next
13:25:51:95 couple of weeks will look like. So I will hand this
13:25:51:95 over to our conference organizers to let us know
13:25:59:08 what's on deck for next week.
13:26:04:63 >> Thank you for all of your efforts and thank you
13:26:10:39 to all of the panelists. It's hard to believe we
13:26:10:39 are here. It's the first session. Maia and I
13:26:14:34 propose this and you for all of your efforts and on
13:26:23:60 the community and for research and for the global
13:26:23:60 community as well. I will share that at our next

13:26:28:48 session. I also want to say thank you for two hours
13:26:37:10 interpreters, close caption test and we have a lot
13:26:37:10 of students, Brooklyn, Ashley that have been helping
13:26:40:89 behind the scenes. Also, Mistelle and Heather, the
13:26:46:61 manager at the strong coast. I will never view a
13:27:00:76 zoom webinar the same way with all of the efforts
13:27:00:76 behind this. Next week I will have session 2 on
13:27:00:76 fostering informed decisions and actions. You might
13:27:00:76 have seen a lot of these people in the news,
13:27:01:94 especially Lindsay and the science for COVID-19 and
13:27:13:30 there should be a quiz and he should be linked to it
13:27:13:30 in your browser if you want to gain the session
13:27:13:30 survivorship and so you need an 80 percent or
13:27:21:35 higher. We did try to limit the number of
13:27:21:35 questions, and there is also opportunity to provide
13:27:21:35 feedback rating the session on a scale of 1 to 5 on
13:27:33:46 any comments we really appreciate your feedback and
13:27:33:46 I'm sorry we didn't get your questions. Please
13:27:33:46 continue this conversation on Twitter.
13:27:35:34 #AEESPCONVERGINGCOVID To keep answer your questions
13:27:42:77 but thank you to everyone that submitted and that
13:27:42:77 participated. And we want to acknowledge our
13:27:46:63 sponsors National Science Foundation for offending
13:27:51:93 vests and the different universities and
13:27:51:93 organizations. Thank you and hope to see you next
13:27:56:98 week.