Meeting of the Directorate for Education & Human Resources (EHR)
Advisory Committee
Thursday, April 25, 2019
National Science Foundation
2415 Eisenhower Avenue, Alexandria, VA 22314
Room E2030

PLEASE NOTE: All AC members present attended virtually via WebEx.
The public attended in person.

Advisory Committee Members Present: Hyman Bass, Catherine Casserly, Rory A. Cooper, Kaye Husbands Fealing, Margaret Honey, David H. Monk, Debra Joy Pérez, Francisco C. Rodriguez (chair), Marilyn Strutchens, Laurel Vermillion, Lillian Wu

Designated Federal Officer: Karen Marrongelle

8:30 AM – 9:00 AM **WELCOMING REMARKS FROM THE EHR AC CHAIR & THE EHR ASSISTANT DIRECTOR**
Dr. Francisco Rodriguez, Chair, EHR Advisory Committee, & Chancellor, L.A. Community College District
Dr. Karen Marrongelle, Assistant Director, EHR

Dr. Rodriguez welcomed AC members to the meeting and provided an overview of the meeting's agenda. Meeting topics include updates on responses to the 5-year STEM Education Strategic Plan and hurdles in carrying out the Plan, EHR and the Federal government's plan on monitoring and evaluation, updates on the Ten Big Ideas, the AC Subcommittee Report on Graduate Education, and remarks from the NSF Chief Operating Officer, Dr. Fleming Crim. Dr. Rodriguez requested motions to approve the previous meeting's minutes and minutes were unanimously approved. Dr. Rodriguez ended his remarks by highlighting recent AC members' accomplishments.

Dr. Marrongelle welcomed everyone to the meeting and acknowledged EHR staff who had worked diligently to plan and execute the meeting. She announced that Dr. Sylvia James has been permanently selected as EHR's Deputy Assistant Director. Dr. Marrongelle shared highlights that occurred since the last meeting, including an update on the NSF and Boeing partnership and the publication from the NSF hosted workshop Reskilling America's Workforce: Exploring the Nation's Future STEM Workforce Needs. She also praised EHR staff who worked to recover lost time due to the Federal lapse in appropriations to ensure 2019 GRFP students received funds by the deadline. Dr. Marrongelle provided an overview of the Federal budget process and stated that the EHR FY20 budget request reflects EHR priorities, which include community input. She noted that EHR is the steward for the NSF INCLUDES, one of NSF's 10 Big Ideas, and therefore oversees its budget and management. She also commented on some of the other NSF Big Ideas such as Harnessing the Data Revolution, Navigating the New Arctic, and the Future of Work at the Human-Technology Frontier. She shared that her aspirations for EHR include funding research that address problems vexing teachers and understanding what education students of today will need for the future. She encouraged all to ask questions about how technology influences how people learn and to be future-oriented to understand where education is headed.

Dr. Marrongelle then led attendees in a moment of silence to pay tribute to Program Officer Julio E. López-Ferrao who recently passed.

9:00 AM – 9:45 AM **SESSION 1: PANEL ON THE FEDERAL STEM EDUCATION 5-YEAR STRATEGIC PLAN**
Moderator: **Karen Marrongelle**, Assistant Director, EHR

Panel
Karen Marrongelle, Assistant Director, EHR and Federal Coordination in STEM Education (FC-STEM) Subcommittee Co-Chair
Lloyd Whitman, Assistant to the Director for Science Policy and Planning, Office of the Directory, NSF

Jon Werner-Allen, American Association for the Advancement of Science (AAAS) Policy Fellow, White House Office of Science and Technology Policy

Dr. Marrongelle described the Federal STEM Education 5-Year Strategic Plan and NSF's role in helping to design the plan. She stated that EHR is the lead directorate for enacting and responding to the plan. She noted that the focus on workforce to ensure that the Nation is globally competitive is one of the unique elements of the plan. She also mentioned that the plan is meant to engage STEM educators across the Nation, not just Federal agencies. She summarized the plan's structure as being a broad vision with three goals organized around four pathways, each containing specific objectives. Dr. Marrongelle highlighted two pathways and how EHR aligns with them. She described that both ATE and the new International Education and Training in Technology initiatives are aligned with the pathway Develop and Enrich Strategic Partnerships. She also explained that EHR participates in CSforAll in collaboration with CISE. These both align with the pathway Build Computational Literacy. Dr. Marrongelle noted that NSF is committed to aligning work to the objectives in the Federal STEM Education 5-Year Plan.

Dr. Whitman explained his role in producing the final version of the Federal STEM Education 5-Year Plan and shared that many people from NSF were involved in its writing. He reiterated that the plan is useful outside the federal government as well.

Dr. Werner-Allen stated that implementation of the plan is shifting towards turning the goals into reality. He shared that this is a huge priority for OSTP.

Questions and Comments

AC members applauded the plan and provided positive feedback. Questions and discussion about the plan included: a request for parameters that define a good internship and how internships play a part in students' education; how the implementation of the plan will be funded and assessed; how the emphasis on data and statistics on STEM literacy intersects with diversity; and the importance of including ethics in STEM education. Dr. Bass suggested that awareness of the consequences in using algorithms to govern public decision-making is an important part of public STEM literacy. He also suggested that social consciousnesses of STEM professionals should be included in how we define STEM literacy and ethics in STEM. Dr. Rodriguez agreed that the goals of the plan clearly align with NSF's mission and noted that there is synergy with EHR AC subcommittees. He suggested that the AC could help inform the plan and fulfill the goals by strategically including those minority serving institutions (MSIs).

The panel emphasized the need to bring different people together via authentic work experiences to support the STEM ecosystem. This includes connecting people to employers for internships and jobs and having federal laboratories engage with local communities in outreach. There was an intentional effort to focus on workforce and underscore the community college role in the STEM ecosystem in order to bring attention to opportunities that do not require four-year degrees. Those opportunities are also available for people re-entering the educational system to reskill. The panel also reiterated that access, equity, and inclusive environments help the country excel. In response to AC members' questions with respect to funding, the panel shared that STEM education is a focal area for the administration's FY20 priorities. The panel agreed that there are ethical considerations in how data is presented, and this issue is important as the implementation plan is developed.

9:45 AM – 10:30 AM **SESSION 1: DISCUSSION OF THE FEDERAL STEM EDUCATION 5-YEAR STRATEGIC PLAN**
Moderator: Karen Marrongelle, Assistant Director, EHR

AC members positively noted the emphases of STEM literacy and diversity and inclusion found in the Federal STEM Education 5-Year Strategic Plan. The AC noted the focus on interagency collaborations. Members inquired about the mechanisms that agencies would use to support the various collaborations. They also suggested that defining various terms will be critical as each agency interprets terms differently.

10:30 AM – 10:45 AM **BREAK**

10:45 AM – 11:30 AM **SESSION 2: EHR EVALUATION AND MONITORING IN THE FEDERAL CONTEXT**

Moderator: Sarah-Kay McDonald, Senior Advisor, Office of the Assistant Director, EHR

Dr. McDonald provided an overview of the history of evaluation in the federal government and in EHR. She spoke about the former EHR Division of Research, Evaluation, and Communication (REC), the memo M13-17 from the Executive Office of the President, and the Evidence-Based Policymaking Act of 2018 that requires agencies to develop learning agendas and evaluation plans. Dr. McDonald also mentioned various EHR programs' external and internal evaluation mechanisms. She stated that EHR is seeking input from the AC with respect to what success would look like for EHR in the short and long terms.

AC members asked questions about the types of lessons about broadening participation (BP) that could be gleaned from the evaluations of EHR programs. Discussion continued about the level of detail evaluation reports provide on BP. One report highlights high level information but does not provide details on underrepresented groups, for example. A suggestion was made to conduct a metasynthesis of past evaluations to inform a learning agenda and what counts as success. AC members suggested NSF could amplify the BP effort by providing program awards to departments that increase diversity in the departments.AC members also suggested that NSF provide funding to some university environments to encourage interdisciplinarity and evaluation. The AC also suggested providing resources about best practices so that new programs can incorporate the information into their learning agendas.

Dr. McDonald discussed establishing elements of a theory of change and developing logic models. These tools could serve to guide evaluations that can be compiled in meaningful ways. EHR's Evaluation Monitoring Group has already begun to look across existing program evaluation reports for commonalities. In addition, Dr. McDonald stated that learning agendas evolve over time in response to what an organization learns. Dr. McDonald directed AC members to the award search function on the NSF.gov website to access publicly available publications and products of funded projects as a source of best practices.

12:30 PM – 1:15 PM **SESSION 3: MICRO-UPDATES ON BIG IDEAS AND FROM EHR AC SUBCOMMITTEES**

Moderator: Jermelina Tupas, Acting Division Director, Division of Human Resource Development (HRD), EHR

NSF INCLUDES

Sylvia James, Deputy Assistant Director, Office of the Assistant Director, EHR

The NSF INCLUDES initiative received 25 unique proposals in response to the recent solicitation for new alliances. The program also received $1 million from Boeing to support STEM workforce development and veterans, with an emphasis on women veterans. Dr. James reported that NSF INCLUDES is expanding and has engaged nearly 3900 participants and 600 partners. A developmental evaluation of the program is underway, and a convening of the National Network will be held May 29-30. She also shared that a subset of FC-STEM agencies is working on how to partner across agencies to broaden participation in STEM.

EHR AC Subcommittee on Broadening Participation

Debra Joy Pérez, Senior Vice President of Organizational Culture, Inclusion and Equity at Simmons University and Chair, EHR AC Subcommittee on Broadening Participation

The subcommittee recently met with Dr. Marongelle to discuss the extent to which EHR contributes to broadening participation and influences career trajectories of underrepresented groups in academia. The subcommittee is evaluating significant contributions of PIs. The subcommittee is also examining the impact of CAREER awards on PI career trajectories.. The subcommittee is interested in comparing EHR CAREER awards with those from other directorates.

Convergence Accelerators

Evan Heit, Division Director, Division of Research on Learning in Formal and Informal Settings, EHR, On detail to the Office of Integrated Activities (OIA)

Convergence accelerators fit well with other NSF 10 Big Ideas and priorities, as indicated by its connection to the NSF strategic plan, which includes a specific focus on fostering partnerships and facilitating applications of research. A pilot activity has been developed to occur in two phases. Phase one provides $1 million to 50 projects that build multidisciplinary teams with industry collaborators. Phase two l provides up to $5 million to groups that generate deliverables to address national challenges. The overall Convergence Accelerators program consists of multiple tracks which focus on AI analysis and the national talent ecosystem from the perspective of the employer including skill gap analysis.

Future of STEM Education AC Subcommittee
Margaret Honey, President & Chief Executive Officer, New York Hall of Science, and Chair, EHR AC Subcommittee on the Future of STEM Education

The subcommittee synthesized research literature to identify how highly successful innovative STEM education programs use technology and pedagogy from K-12 to Graduate levels. This survey include innovations through the medium of delivery (e.g., online education programs and hybrid programs) but not only. The committee found that all innovative learning institutions have developed instructional models that promote equity and inclusion. These models are student-centered and project-based to help students display their thinking, personalize their pace and prepare for a changing world. For students to succeed, lessons in the classroom should include evidence-based teaching strategies; a shift in the learning culture from memorization of concepts to building skills and competencies though a process of solving real problems that require STEM knowledge and skills; instead of seeking to identify and exclude those who are still developing their skills these approaches help them gain competencies at their own pace, which in turn ends up being an educational approach that is inclusive . Based on common features of these innovations, the subcommittee is recommending that equity and inclusion be the foundation for all educational interventions, asking the question who we are excluding if we implement this innovation. This will allow for new ideas to emerge; computational and other skills STEM learners will need in the future will be realized throughout all educational levels that EHR supports. The subcommittee believes that students need to be active creators in how technology is engaged in the classroom, as technology is going to play an increasingly prominent role across educational arenas.

Public Private Partnership AC Subcommittee
David H. Monk, Dean, college of Education, Penn State University and Member, EHR AC Subcommittee on Public-Private Partnerships

This subcommittee began its work in fall 2017 to examine how the public-private landscape is characterized and the role EHR plays in that landscape. The subcommittee's focus is on partnerships, including public-private partnerships, and the required criteria to engage in a strategic partnership. The goal is to complete work by fall 2019.

Questions and Comments

AC member Lillian Wu inquired about the level of activity of industry partners in the NSF INCLUDES network. Dr. James responded that those details were likely contained in the NSF INCLUDES developmental evaluation report and that she would follow up with the information later. AC member Hyman Bass asked how convergence accelerators were being leveraged to understand how transitions impact workers and how the . social sciences are involved in this program. Dr. Heit clarified that the pointed to the Dear Colleague Letter's specific societal challenges and indicated that it is expected that proposals would take multidisciplinary approaches to empower workers to prepare themselves for future careers. Karen Marrongelle offered that NSF funds several studies that address these topics. Francisco Rodriguez inquired about convergence accelerator opportunities for two-year institutions. Dr. Heit shared that the convergence accelerator tracks have opportunities for two-year institutions because upskilling and reskilling require partnerships with different types of institutions. He also shared that more proposals are welcome at this time.

1:15 PM – 1:30 PM **BREAK**

1:30 PM – 2:30 PM **SESSION 4: COMMITTEE BUSINESS**
Reports from Committees of Visitors (COVs)
Moderator: Corby Hovis, EHR COV Coordinator and DUE Program Director

Dr. Hovis summarized the purpose, composition, and activities of COVs. COVs examine the quality and effectiveness of NSF's merit review process, the management of programs, and the balance of the award portfolio with regard to geography, institution type, demographic characteristics of PIs, and other factors. He explained that the COVs on the agenda were division-wide in their scope, covering all the programs managed by DUE and DGE.

COV for the Division of Undergraduate Education (DUE)
Introduction: Robin Wright, Division Director, DUE, EHR

Dr. Wright introduced the COV for DUE, which met at NSF on November 8–9, 2018. Pointing out the value of the COV process, she highlighted one action that the division took in response to the observations of past COVs about reviewers' written comments on proposals. Namely, DUE implemented more consistent reviewer training and began encouraging new reviewers to submit a sample review early to receive feedback from program officers.

DUE COV Report: Catherine Casserly, Strategist, Learning, Openness, and Innovation

Dr. Casserly reported out highlights from the COV's findings. She shared that the number of proposals submitted to DUE has increased, and program officers are doing an excellent job of managing the review process. She reported that program officers are writing clear and substantive rationales for their award/decline decisions. However, the COV did find some inconsistency with respect to encouraging resubmission of declined proposals. For comparing the quality of face-to-face vs. virtual panels, the COV recommended a qualitative assessment, in addition to the quantitative analysis of the text of panel summaries and reviews. The COV also recommended that DUE develop an explicit strategy to strengthen the panel consensus process; consider using enhanced boilerplate language or a rubric to inform declines; explore the criteria that program officers are using to provide feedback on resubmissions; and identify ways to incentivize institutions to allow faculty to participate on review panels. The COV also suggested that the division conduct an assessment of staff workload. The COV noted that in the NSF Scholarships in STEM (S-STEM) program, the maximum scholarship amount that a student may receive has not increased in 13 years, while students' education-related costs have risen consistently. With regard to DUE's portfolio of awards, the COV commended the division for the significant percentage of awards having an interdisciplinary or multidisciplinary character, but noted that there appeared to be a decrease in awards to minority-serving institutions during the 2016-2017 period. The COV recommended that DUE analyze how funding is spread across institutions of different types and locations and that DUE investigate barriers that institutions in underserved geographic areas may face in developing and submitting proposals.

Questions and Comments

AC members supported the COV's idea of issuing a Dear Colleague Letter to encourage presidents and provosts to encourage faculty to serve on NSF review panels. Clarification was provided that the maximum amount for S-STEM scholarships, which are funded by receipts from H-1B visa fees, is Congressionally determined and NSF has no authority to increase the amount. DUE will provide the data on the number of scholarship awards over the past 13 years later. The AC voted to accept the COV's report.

COV for the Division of Graduate Education (DGE)
Introduction: Nimmi Kannankutty, Acting Division Director, DGE, EHR

Dr. Kannankutty introduced the COV for DGE, which met at NSF on October 11–12, 2018. As one illustration of the value of the COV process, she explained that in response to comments from previous COVs, DGE modified its reviewer recruitment strategy to incorporate panelists representing multiple sectors.

DGE COV Report: Rory A. Cooper, Founding Director, Human Engineering Research Laboratories, and Distinguished Professor and FISA/PVA Professor, Department of Rehabilitation Science and Technology, University of Pittsburgh

Dr. Cooper summarized the findings of the DGE COV. He reported that the COV concluded that DGE is carrying out the review process effectively, that panel summaries are substantive, and that program officers' review analyses demonstrate sound scholarship. The COV suggested that DGE consider intersectionality and cross-disciplinary orientations with respect to shaping the pool of reviewers. The COV observed that groups of reviewers who use templates appear to produce reviews of more consistently high quality than groups of reviewers who do not use templates. Although it was clear that the division does a good job of finding diverse sets of qualified reviewers, a COV could benefit from more details about panel members, to assess whether the reviewers are well-matched to the proposals being reviewed on each panel. Overall, the COV found an appropriate balance of awards across different types of institutions. The COV could not see a clear connection between the distribution of funding in the NSF Graduate Research Fellowship Program (GRFP) and programmatic objectives and priorities. The COV suggested that the division consider being more strategic in the distribution of awards, looking at projected labor market needs. The COV also noted that the GRFP's cost-of-education allowance (paid to institutions) may not be keeping pace with rising tuition costs. To enhance DGE's ability to evaluate the effectiveness of its support for graduate students via scholarships, fellowships, and traineeships, the COV recommended that the division consider mentoring plans and Independent Development Plans (IDPs) for students, with appropriate reporting throughout a student's tenure. The COV recognized that DGE must obtain buy-in for some of its programs, which can be challenging.

Questions and Comments

The discussion revealed that a high percentage of NSF Graduate Research Fellows complete their education, but more could be done to track the fellows to see what they do afterwards. AC members also took note of the COV's observation that in recent years, a few universities have consistently enrolled a large share of GRF recipients. Some wondered whether the awards are being distributed widely enough and whether there could be better representation of populations applying for the fellowships. It was suggested that awards be tailored to types of institutions and students, which vary widely. The AC voted to accept the COV's report.

Dr. Hovis concluded the session by noting that a division-wide COV for the Division of Research on Learning in Formal and Informal Settings (DRL) is scheduled for late 2019, and Dr. Okhee Lee will chair that COV.

2:30 PM – 3:30 PM **SESSION 5: GRADUATE EDUCATION AC SUBCOMMITTEE REPORT**
Moderator: Nimmi Kannankutty, Acting Division Director, DGE, EHR
Marilyn Strutchens, Emily R. & Gerald S. Leischuck Endowed Professor, Mildred Cheshire Fraley Distinguished Professor, Department of Curriculum and Teaching, Auburn University and Chair, EHR AC Subcommittee on Graduate Education

Dr. Strutchens acknowledged Dr. Jim Lewis and Dr. Earnestine Easter for their support for the subcommittee. The subcommittee was charged with responding to the NASEM Graduate Education for the 21st Century Consensus Study report. She explained the subcommittee's report includes the six recommendations for Federal funding agencies described in the report, along with the subcommittee's responses to each. The subcommittee viewed the first recommendation of requiring institutions that receive federal funds to develop policies on data collection is too difficult to achieve due to disproportionate abilities of institutions to collect the data. The subcommittee believes that mandating such data collection without funding will lead to low quality and inconsistent information. The subcommittee agrees with the second recommendation of issuing calls for proposals to better understand the graduate education system and outcomes of various interventions and policies. The subcommittee thinks that a metasynthesis of the past 20-30 years be the first step in acting on this recommendation and suggests that a call for proposals on teaching and learning focus on learning. The subcommittee also thinks consideration should be given to the differences in graduate education across disciplines. In response to the third recommendation of Federal funding agencies aligning policies and award criteria to ensure students experience graduate education described in the report, the subcommittee agrees, with caveats. The subcommittee agrees with the core competencies listed in the report but recognizes that different programs may need modifications to the list of competencies and that career exploration will differ based on discipline. Additionally, some subcommittee members disagreed that project-based learning is superior and instead believe that project-based learning and traditional learning are equally important.

Some ways to guide the graduate student experience include developing and individual development plan (IDP) framework for all students funded via NSF, require more information from PIs on student products and accolades under the "prior NSF support" section of proposals, create a standalone funding program that crosses directorates for distinguished graduate seminars for graduate students that lead the work supported by NSF-funded faculty. This could highlight transdisciplinary team-based research. The subcommittee suggests that before NSF aligns funding with this recommendation that a holistic assessment of the impact of such a change to the system be completed. The subcommittee broadly agrees with the fourth recommendation of embedding diversity and inclusion metrics in funding criteria. The subcommittee believes that the NSF merit review statement on broadening participation is not strong enough and institutional support to broaden participation should extend beyond the recruitment phase. Efforts to retain diverse students, to include first generation, LGBTQ, and other race, class, and national origin descriptors, should be supported by addressing institutional norms and cultures. One way to accomplish this is to create rubrics to highlight traits that potential graduate students would need to have for specific fields. Policies should be included to incentivize diversity and inclusion and expanding information gathering efforts on broadening participation for funded projects. In addition, the broadening participation portfolio could be extended by increasing the numbers of programs that require broadening participation as an explicit review criteria and priority. The subcommittee was skeptical about the value of the fifth recommendation for Federal agencies to support research on how different disciplines can integrate. The subcommittee believes that existing studies can be reviewed before soliciting proposals for this. If new studies are realized, they should focus on the most needed discipline clusters. The subcommittee agreed with the sixth recommendation of requiring STEM doctoral students to create annual IDPs, with a caveat. While the subcommittee agrees students should complete IDPs, it does not believe IDPs should be required until there is evidence that they work. To support this, the subcommittee suggests that PIs submit documentation that they have completed training in mentoring and IDP development.

Discussion

Moderator: Francisco Rodriguez, Chair, EHR Advisory Committee

Questions about the subcommittee's support for the majority of the recommendations was noted and discussed by the AC. Dr. Strutchens reiterated that the subcommittee chose not to support the first recommendation because it thought useful quality data would be too difficult to gather. A suggestion to map the recommendations to what NSF is current doing was offered. Dr. Marrongelle indicated that EHR staff could assist with this effort. A question about the ability for NSF to move forward with the fourth recommendation was raised by the AC. Dr. Marrongelle stated that this topic would be discussed across the NSF. The AC voted to accept the subcommittee's report and responses.

3:30 PM – 3:45 PM **BREAK**

3:45 PM – 4:00 PM **PREPARE TO MEET NSF CHIEF OPERATING OFFICER**
Moderator: Francisco Rodriguez, Chair, EHR Advisory Committee

AC members suggested topics for which the AC would like insight from with Dr. Fleming Crim, COO of NSF. The topics included the Federal budget and NSF funding, NSF's role in the Federal STEM Education 5 YearStrategic Plan, the role of the AC and how the committee can best provide useful advice to NSF, NSF's 10 Big Ideas, , NSF's role in increasing K-12 participation and engagement in STEM education, and priorities for which the AC can be helpful toNSF's Director and COO.

4:00 PM – 4:45 PM **TALK WITH NSF CHIEF OPERATING OFFICER F. FLEMING CRIM**
Moderator: Francisco Rodriguez, Chair, EHR Advisory Committee

Dr. Crim informed the AC about the NSF Director's White House meeting on artificial intelligence (AI) and the meeting on skilled technical workforce at the Office of Science and Technology Policy (OSTP). He shared budget information, including the NSF process of creating budgets. Dr. Crim updated the AC on some of NSF's recent activities, such as the convergence accelerators rollout and the release of NSF's term and conditions on sexual harassment. He acknowledged the committee for its time and the value all advisory committees add to NSF.

Members asked questions about NSF's role in increasing engagement and achievement in K-12 STEM education, the next generation of NSF's Big Ideas, and ethical issues with algorithms and AI use in the workplace. Dr. Crim

emphasized that NSF can fund research to inform changes and reveal what does and does not work. He also shared that the NSF 10 Big Ideas are just now getting up to full speed, that the trajectory and lifetime of the NSF 10 Big Ideas are unfolding, and some may evolve and flourish into something else or decrease. In response to the question on fairness of algorithms, Dr. Crim shared that the Directorate for Computer and Information Science and Engineering (CISE) has partnered with Amazon to study the issue. He stated that NSF is also considering the robustness of its guidance on the responsible conduct of research. This topic intersects with open science, open data, and some behavioral issues. The Directorate for Social, Behavioral, and Economic Sciences (SBE) has a program focused on these issues.

Other questions from AC members to Dr. Crim included whether NSF could consider funding research to identify the most impactful education component to make internships most effective and whether NSF could provide leadership on identifying the best online format to uptrain or reskill people. Members also inquired about resources and how this AC can be helpful. Dr. Crim spoke about the budget process and mentioned that NSF is trying to develop strategies to best manage continuing resolutions. He also shared that the agency is trying to explore options on how to reduce the workload for the agency's workforce, especially since the recent lapse in appropriations has exacerbated an already heavy workload.

4:45 PM – 5:00 PM **CLOSING REMARKS**
Francisco Rodriguez, Chair, EHR Advisory Committee

AC members were pleased with how the technology worked for the virtual meeting, but most voiced preference for in-person meetings which facilitate meaningful side conversations among AC member as well as AC member and NSF staff. The AC agreed that the meeting was productive and provided the opportunity for them to think about various topics, such as the need for more high school teachers in rural areas, the economy and skilling with regards to workforce development, learning agendas, and the potential presence of implicit bias in algorithms used for online learning. Dr. Rodriguez suggested that the fall meeting may be a good time to revisit the topic of open learning. AC members look forward to hearing more from the subcommittees during the next meeting, and would like time to preview relevant documents and consider information..

Dr. Rodriquez thanked the presenters and technology staff for a productive meeting. Dr. Marrongelle closed the meeting by acknowledging the EHR staff that participated and made sure arrangements were in place for the day.