



**Minutes from the NASA Advisory Council Ad Hoc Task Force on
Science, Technology, Engineering
and Mathematics (STEM) Education**

**March 20, 2018, 12:00 noon – 3:30 pm
NASA Headquarters/Virtual Meeting**

STEM Task Force Council Members

Present: Carl Person, Ray Mellado, and Aimee Kennedy, Chair

Absent: Michael Lach

Others Present:

Executive Secretary: Beverly Girten, NASA HQ Office of Education

Michael Kincaid, Kris Brown and Roosevelt Johnson, NASA HQ Office of Education

Rob LaSalvia, Rick Gilmore, Catherine Graves, Tara Strang, NASA Glenn Research Center

Diane Rausch, NASA Advisory Council Executive Secretary

NASA HQ Office of Education Support Staff Present:

Claudette Washington, Total Solutions, and Diane Clayton, Notetaker, Valador

Opening Comments

Dr. Beverly Girten, Task Force Executive Secretary, called the meeting to order and extended a welcome to all. She advised the meeting is a Federal Advisory Committee Act or FACA meeting, and as such, is subject to relevant Federal regulations and laws. The meeting was open to the public and accessible via Webex and telephone. Dr. Girten stated the primary purposes of the meeting which were to hear an update on NASA Education and to formulate and discuss recommendations and findings for the upcoming NASA Advisory Council (NAC) meeting. She instructed participants that only members of Task Force should speak and that members of public should follow instructions published in the Federal Registry if they want ask a question. She asked participants to identify themselves as they speak. Dr. Girten confirmed the Task Force members, Dr. Aimee Kennedy, Mr. Ray Mellado and Dr. Carl Person, were present. The other Task Force member, Dr. Michael Lach was absent.

Dr. Aimee Kennedy, Task Force Chair, stated she was looking forward to hearing about new initiatives and asked Task Force members to identify themselves. Dr. Aimee Kennedy, Senior VP for Education and Philanthropy for Batelle and Task Force Chair, Dr. Carl Person, Retired NASA MUREP Manager and Consultant to Fayetteville State University, and Mr. Ray Mellado, Founder and Chairman of the Board, Great Minds in STEM, all gave brief introductions.

Evaluation and Performance

Mr. Rob LaSalvia, Division Chief at NASA Glenn Research Center and Lead for Performance Monitoring and Evaluation noted he gave an introductory high-level briefing to the Task Force a few months ago. He stated that since that time, he and his team have made significant progress in that work. From an orientation stand point, he and his team had three things to point out: 1) What they will see today is first phase of three phase process; 2) His team welcomes all questions, comments, feedback from NAC Task Force. He noted that the work they are to present is already two-three weeks old and that their thinking has already starting to change; and 3) The strategy they present today is primarily focused on appropriated dollars. He noted that under the Business Services Assessment (BSA), his team has the desire to develop a strategy for the entire agency, but they are starting with the Office of Education. Mr. LaSalvia then Introduced his team members: Mr. Rick Gilmore, Office of Education Glenn Research Center, Evaluation Lead; Dr. Cathy Graves, Paragon Tech, Lead Evaluation Specialist and Dr. Tara Strang, Paragon Tech, Evaluation Specialist.

Mr. LaSalvia and his team then went through the presentation titled: Assessing the Impact of NASA's STEM Engagement Investments: Development of External & Internal Performance Measures.

Dr. Tara Strang gave an overview of performance and assessment. She noted this is a three step process and that the team is currently in Step 2. She shared that the goal in creating a strategy is to include outputs that are associated with outcomes. The outputs can be looked at in short term so that programs can use that information to make changes for the long term. Mr. Gilmore stated the team completed the benchmarking of other federal agencies and the literature review. They are currently conducting internal and external stakeholder discussions. Mr. Gilmore shared the development schedule for external and internal performance measures. He noted that after they disposition feedback from stakeholder discussions, they will present to an external panel. It will be an iterative process to share performance measures with stakeholders and Office of Education. The team anticipated having the FY19 and FY20 performance goals by July 2018. Mr. Gilmore shared the internal and external stakeholders they are meeting with and pointed out discussions with the Space Grant directors during their winter meeting earlier in March. Dr. Cathy Graves noted they are currently forming an external panel of experts and that the Expert Review Panel is to be held in Washington, DC in late April or early May. They anticipated having NASA Advisory Council (NAC) and the National Science Foundation (NSF) representatives along with nationally recognized experts join the meeting.

Mr. Rick Gilmore then shared the proposed Office of STEM Engagement Performance Assessment Strategy Framework. The strategy aligns focus areas with programmatic investment areas, which are external measures and cross-cutting operational support areas, which are internal measures. Those in blue are internal measures. Dr. Cathy Graves noted they plan to have the draft Programmatic Strategic Investment Areas tentatively completed by July. Dr. Graves noted they are moving away from one, single quantitative data point as an indicator of success to qualitative indicators of success. They are working on identifying the big questions they want to answer. Dr. Graves Identified which activities contribute to various measures and offered one example of what an operational infrastructure looks like. The group concluded the presentation and welcomed questions.

Mr. Ray Mellado noted he was impressed with the presentation and asked for more clarification on the external expert review panel discussions. Noting that the presentation emphasized higher education diversity, he asked by why higher education and not just education diversity? Mr. Rick Gilmore responded that in past we've had the diversity measure tied to higher education diversity and that it is benchmarked to the Department of Education. He stated that historically that is the data they've looked at. Mr. Ray Mellado stated we need to excite the younger generation, particularly among minority and underrepresented groups. Experts are need to help with the younger market as well as the university level and that there needs to be feedback on how this will be accomplished over the next 2-3 decades.

Dr. Carl Person commented the team is doing an outstanding job and that he looks forward to seeing the outcomes later this summer. He noted he agrees with Ray about diversity and asked about which agencies the team looked at. Mr. Rick Gilmore responded they looked at all the STEM education agencies—13 or 14 agencies—and that they worked in collaboration with the FC-STEM efforts. Mr. Mike Kincaid asked Mr. Gilmore to elaborate on the FC-STEM efforts, noting that this evaluation team is taking on a facilitation role.

Mr. Gilmore stated that as part of Federal Committee on STEM (FC-STEM), interagency working groups (IWG) were set up on topical areas—STEM Engagement and Broadening Participation. There was a STEM Evaluation convening meeting which brought folks together from different agencies to look at: 1) infrastructure and performance assessment; 2) evaluation and performance assessment in last 5 years; and 3) to identify a common framework that could be used across the agencies.

Responding to Dr. Aimee Kennedy's question on internal and external feedback, Mr. Gilmore noted that they have been hearing common themes among the groups.

Dr. Cathy Graves commented the team is working on aligning language to the 2018 NASA Strategic Plan and the Public and STEM Engagement document that resulted from BSA. In the past, performance measured were numbers, but did not look at student experience. Dr. Graves noted this has been one of the biggest shifts, moving away from quantitative measures to qualifying the student experience.

Dr. Aimee Kennedy asked if other agencies have a similar framework and way of thinking about their engagement and outreach work or if this is more on the vanguard. Mr. Rick Gilmore noted that NSF in particular NSF uses the strategic performance questions and that there is variability across agencies as to how to align with their strategic plan.

Mr. Ray Mellado asked if the team has been working with Department of Defense. Mr. Rick Gilmore responded Department of Defense had representation at STEM Ed convening meeting and that the NASA team has talked with them. Mr. Mellado noted Department of Defense has a sizeable budget (compared to NASA) for outreach and that he would like to bring up some of this process work to Diane (Rausch).

Mr. Mike Kincaid thanked the group for helping us make connections. He noted a year ago the Office of Management and Budget (OMB) was complaining about our evaluation strategy. Mr. Kincaid asked Glenn Research Center to take on evaluation for the agency and that he couldn't be prouder of the work they have done in a relatively short period. NSF asked the NASA team to facilitate conversation in a multi-agency working group. Mr. Kincaid noted agencies, such as Department of Education and Department of Defense, have much more money than NASA to spend on evaluation, but that NASA is quickly becoming known for the work NASA is doing. Mr. Kincaid offered to the Task Force members to speak directly with any of the Evaluation Team members if they have any questions.

Office of Education Update

Education Business Service Assessment

Mr. Mike Kincaid noted the Vision and Mission for Public and STEM Engagement for the Agency came out of the Business Service Assessment (BSA) work. He noted a key part from the BSA is to start with the Mission Directorates. Mr. Kincaid stated NASA has a significant investment in Office of Education and that it must be aligned with what Mission Directorates are trying to accomplish. Mr. Kincaid explained the Office Education is switching to the Office STEM Education but that NASA can not officially change the name until NASA notifies Congress. NASA can not notify Congress until Congress officially appropriates money for Office of Education. Mr. Kincaid stated a driving question is how do we—Office of Education and the Mission Directorates—together engage the Nation in the work we do at the Agency.

In addressing the fiscal climate, Mr. Kincaid noted the STEM Education and Accountability Project (SEAP) was cut from \$25M to \$10M. He also noted the President's Budget eliminated Office of Education, stating that the President's Budget expressed that the Office of Education did not do enough to evaluate and demonstrate its work. Mr. Kincaid further stated that the House and Senate are both strongly supportive of work performed by the Office of Education and that we are currently waiting for Congress to determine the budget. We are currently under a continuing resolution (CR), set to expire Friday night at midnight. Mr. Kincaid stated all are expecting Congress to pass a full budget for the year, not just a CR. Mr. Kincaid stated the Office of Education assumes a budget of \$100 M but that the office has backup plans if appropriated \$90M. Mr. Kincaid stated the Acting Administrator Robert Lightfoot has given Office of Education direction to keep working and to make the changes in the BSA. Mr. Kincaid stated Office of Education is sunsetting projects because the SEAP line item went from \$25 M to \$10 M.

Ms. Kris Brown then updated the group on the BSA. She noted she updated the group on the BSA in December and that the Implementation Team for the BSA was tasked to develop a comprehensive plan. The BSA team was also asked to recommend a new vision for the agency. On October 6, 2017 NASA adopted the vision and mission that was developed through the BSA. Ms. Brown shared three elements of focus for the implementation plan: 1) a comprehensive agency strategy for public and STEM engagement; 2) governance, roles and responsibilities—there is a new agency function for STEM engagement and new HQ office for STEM Engagement; and 3) more rigor in program and grants management. Ms. Brown stated Office of Education is heavily in the midst of the execution of the Implementation Plan.

Ms. Brown referred to the decisional meeting to form STEM Engagement Council (SEC) that aligns with the NASA Executive Council, and indicated that the SEC will report to NASA Executive Council. Officials-in-Charge and Centers have been asked to appoint their member for the first SEC meeting, to held on April 12. Ms. Brown shared that the new NASA Policy Directive (NPD) for STEM Engagement is now in internal stakeholder review.

Space Grant

Mr. Kincaid indicated Space Grant is coming up on 30 years and that he spent a lot of time talking with them at the Space Grant Directors meeting, held earlier in March 2018. Mr. Kincaid said it became obvious that Office of Education was not effectively integrating MUREP efforts with Space Grant. As a result, Mr. Kincaid noted he asked Ms. Joeletta Patrick, who is still the MUREP manager, to also step into the role of Space Grant manager. Mr. Kincaid also noted that Ms. Krista Paquin, NASA Acting Deputy Associate Administrator and other key NASA officials—Dr. Douglas Terrier, Acting Chief Technologist and Dr. Prasun Desai, Deputy Associate Administrator for Management of the Space Technology Mission Directorate also went to meet with the Space Grant directors.

New Intern Application System

Mr. Kincaid noted the intern application system has a new entry page, changing from a text heavy page with lots of rules and regulations to a simpler and more visually appealing page. Mr. Kincaid noted the new system was unveiled last week and that it is similar to what many Fortune 500 companies are using today. Mr. Kincaid noted one key change is that students can now start the application process, leave at any time and come back to complete the application. The older system did not have that functionality. Mr. Kincaid also noted behind-the-scenes changes have been made which allow for better matching of interns to mentors. Mr. Kincaid shared these changes at the Space Grant Directors meeting and noted the Space Grant community was thrilled to see the changes.

Year of Education on Station (YES)

Mr. Kincaid noted Mr. Joe Acaba, a teacher, was in space between September 2017 and February 2018 and that Mr. Ricky Arnold, also a teacher, will launch tomorrow (March 24) at 1:44 in the afternoon from Kazakhstan. Mr. Kincaid stated that in a normal year, there are 15 downlinks but this year there will be just over 60, which is quadruple the number of downlinks. Mr. Kincaid explained the International Space Station (ISS) added a new crew member which translates to more crew time. Mr. Kincaid explained 28 downlinks have been completed to date and 24+ downlinks are anticipated before Mr. Ricky Arnold returns in August.

National Science Teachers Association (NSTA)

Mr. Kincaid noted that of the 55,000 teacher members of the NSTA, some 8,000-9,000 attended the NSTA last Friday (March 16, 2018). During the NASA presentation there was a taped message from Mr. Ricky Arnold. Mr. Kincaid shared that Mr. Joe Acaba could not attend because the flight doctors did not give him permission to travel. Mr. Kincaid shared that Jeff Weld, the new Senior Policy Advisor for STEM Education at Office of Science Technology Policy attended the NSTA. Mr. Kincaid noted that at the NSTA meeting he increased awareness of the partnership with Challenger Center to conduct the lost lessons of Christa McAuliffe. The lessons are being repackaged and some of those will be distributed beginning this summer.

Teams Engaging Affiliated Museums & Informal Institutions (TEAMS II)

Dr. Beverly Girten explained that Teams Engaging Affiliated Museums & Informal Institutions or TEAMS II, replaces CP4SMPVC (Competitive Program for Museums, Planetariums and Visitor Centers). The solicitation had been put on hold because with the budget constraints, Office of Education did not have the money to make the awards. Dr. Girten explained the differences between TEAMS II and CP4SMPVC: TEAMS II is more streamlined, user friendly and focused. She also stated TEAMS II has reduced dollar caps compared to CP4SMPVC (\$750K vs \$1250K). TEAMS II requires teaming and networking. Dr. Girten explained that TEAMS II is awarding fewer numbers of grants due to reduced budget but added that Office of Education hopes that with the new teaming approach, TEAMS II will reach as many people as CP4SMPVC. Dr. Girten stated the external review of proposals will begin next week and that the intent is to make awards during the first week of July. D. Girten explained this is an accelerated review process which cuts 1-2 months off a process which normally takes six full months. Dr. Girten shared the statistics on the number of proposals received. This solicitation is more user friendly and more focused.

Dr. Carl Person asked how many awards are expected and Dr. Girten responded that it is not determined at this time. It is dependent on the budget that is to be released in the next few days, stating at best Office of Education can hope for \$10M for the entire SEAP component, noting TEAMS II will have a percentage of that. She noted the solicitation states between 1 and 5 awards are anticipated.

Findings and Recommendations

Dr. Beverly Girten noted that during the last Task Force meeting the Council put together findings and recommendations that went forward to the NAC and that the only one outstanding item is the recommendation for Elevating Ad Hoc Task Force Status. All the previously submitted findings were accepted. Dr. Girten started the discussion with topic asking the Task Force Council to keep in mind that NASA does not have a named Administrator and that Mr. Robert Lightfoot announced his decision to retire at the end of April. Mr. Kincaid added that Mr. Jim Bridenstine made it through Committee last fall but that there has been no further activity. Mr. Ray Mellado noted the Task Force made the recommendation to the NAC to make STEM Education Ad Hoc Task Force permanent and stated that Gen. Lyles, NAC Chair, agreed but wanted to wait until a new Administrator was on board. Dr. Aimee Kennedy suggested showing the exact recommendation to the NAC and remind them that it is on the table, recognizing things have not changed in terms of having a new Administrator. Mr. Ray Mellado asked if the issue goes to Congress once the NASA Administrator approved and Mr. Mike Kincaid replied that the NASA Administrator can decide. Mr. Ray Mellado then asked if the Task Force can ask the current Administrator since it is taking longer than anticipated to have a new Administrator named. Mr. Mike Kincaid explained the current Administrator could but since current Task Force is chartered through November, the NAC prefers to leave the decision to the new Administrator. Dr. Carl Person agreed with reminding the NAC the status remains on the table and to wait for the new Administrator to make a decision.

Dr. Carl Person also suggested finding a way to inform the NAC that the Office of Education is doing is an outstanding job of evaluation and planning as they move forward. Dr. Kennedy

agreed and suggested it could be a finding the Task Force comes forward with, stating the Office of Education is making continued, terrific progress against BSA recommendations. Mr. Ray Mellado also agreed with this suggestion.

Dr. Girten noted the Task Force will have 45 minutes on the NAC agenda, which is more time than typically allotted. Dr. Girten noted the Task Force is ahead of the agenda and suggested they take a break earlier than scheduled and upon return begin working on the presentation slides for the NAC. Dr. Kennedy agreed and the meeting adjourned for a break.

Finalize Findings and Recommendations

Dr. Beverly Girten explained the primary difference between writing a finding and a recommendation. A recommendation includes the major reason for recommendation and consequences of no action whereas a find is a statement of the finding. A recommendation needs to be actionable.

Mr. Ray Mellado suggested the Task Force include that Office of Education has made significant progress toward the evaluation of NASA STEM education investments and that Office of Education evaluation activities are in sync with the National Science Foundation. He added that the Task Force should include specific examples.

The Task Force discussed key points to include in the presentation to the NAC, including key points for Year of Education on Station, participation at the NSTA, streamlined process for TEAMS II along with the two focus areas of the announcement—Human Exploration Beyond Low Earth Orbit, and Small Steps to Giant Leaps. The group pulled together slides for their presentation to the NAC. The presentation includes the following draft language:

Recommendation 1 - Elevate the Ad-Hoc Task Force Status

- The NASA Advisory Council Ad-Hoc Task Force on STEM Education should become a regular committee of the NAC.

Major Reasons for the Recommendation:

- A regular committee of the NAC that focuses on STEM Engagement, and is made up of representatives from key stakeholder groups, will provide a set of diverse perspectives from different constituent groups about trends and current events in the national STEM movement.

Consequences of No Action on the Recommendation:

- The institutional knowledge developed by the current task force over the last 38 months will be lost.
- The Terms of Reference for the NASA Advisory Council Ad-Hoc Task Force on STEM Education indicate that with no extension or formalization, the task force dissolves in November of 2018.

Finding: Continued Progress and Strategic Alignment

The Office of Education continues to demonstrate progress toward of Education to improve the strategic alignment, implementation, and evaluation of their

STEM engagement activities have happened swiftly and are impressive. The Office has undertaken a comprehensive approach to researching and developing an evaluation program. The Office has also realigned the Space Grant and Internship programs to be more closely aligned with the mission and vision of NASA. Another step the Office has taken is to use the unique situation of two educators on the Space Station to name this year the “Year of Education on Station”. Finally, the Office realigned the informal institution solicitation to be more focused and streamlined.

- Significant progress toward evaluation of NASA STEM education investments
- Realigned Signature Programs (i.e. Space Grant and Internship)
- Amplifying NASA profile with Year of Education on Station
- TEAM II Solicitation optimized

Mr. Mike Kincaid asked if the group can wordsmith outside of this meeting to which Dr. Bev Girten responded in the affirmative, provided the intent of the presentation does not change. Mr. Kincaid asked for further clarification on Task Force members exchanging emails. Dr. Girten explained that Task Force members may not exchange emails discussing Task Force topics but that Dr. Kennedy, Task Force Chair can work with Dr. Girten, Executive Secretary to communicate with the group.

Task Force members agreed with the wording of the recommendation and finding established during the meeting and agreed to work through Dr. Girten for any additional changes.

Adjourn Meeting

Dr. Girten adjourned the meeting at 2:50 p.m.