Making the Case: Principles for Workforce, Education, Public Outreach and Communications (WEPOC)

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State of the Profession - Education and Public Outreach

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Abstract:

Following an April 2017 workshop at Caltech, a group of 20+ astronomy and high-energy physics leaders have been compiling a body of knowledge to “make the case” for the importance of WEPOC in large science projects, and how WEPOC should be developed and implemented. We summarize the outcomes of this work, including a list of WEPOC eight principles and practices that world-class science projects should (and do) implement. Additional leaders in astronomy and high-energy physics have been invited to endorse these maxims based on their own experience of how science projects most effectively advance their WEPOC goals, and we advocate for the inclusion of these principles in the Astro2020 Decadal recommendations.

Introduction

Although there is a general sense and agreement that science projects and facilities should engage in workforce, education, public outreach and communications (WEPOC), there are remarkably few concrete guidelines as to what this means in practice. Within projects funded by the NSF or NASA, the landscape and expectations of WEPOC programming has frequently shifted and the value of this work has alternately been deemed essential at one end of the spectrum, or deemed superfluous, or a luxury, at the other.

Although this is fortunately becoming less common, how often have WEPOC programs been initiated in an ad hoc fashion? At times, WEPOC priorities come at the whim of the organization Director, requests from science staff for local initiatives in e.g., schools, or at the other end of the spectrum, at the direction of the Board. While most WEPOC ideas are good ones, not all are feasible, nor advisable, in a limited resource environment, and without a strategic framework for guidance.

It is noteworthy that currently, there has been somewhat of a migration from these volunteer / best-effort driven initiatives, and many projects engage WEPOC specialists as part of their team. However, their experience, access to leadership, specific roles and functions can be quite different.

In an April 2017 workshop at Caltech, WEPOC leaders from high-energy physics and astronomy projects from around the world participated in a candid forum for considering fundamental questions regarding WEPOC for large science projects. These questions included:

- What is the value of WEPOC to the projects and their communities?
- How, when and where should WEPOC be defined, developed and implemented?
- What are the barriers and challenges in developing strategic plans and programs?
- How do you make the case of the value of WEPOC to the leadership in these projects?
Principles for WEPOC Professionalism

The outcome of this workshop is an evidence-based set of rationales that establish the critical nature of WEPOC in science projects. These are framed within a set of eight principles and practices for world-class science projects to implement:

1. A phased WEPOC strategic plan should be initiated in the conceptual stage of the project, adequately resourced, and be aligned with the vision, mission, and strategy of the project and partners.
2. The project has a responsibility to consider the WEPOC requirements of its partners and the wider community.
3. WEPOC enables the project to fulfill an obligation to be respectful, responsive and an integral part of the site community.
4. WEPOC leaders should be integrated into the leadership structure with access to the decision-making bodies.
5. WEPOC staff should hold relevant professional WEPOC qualifications and/or experience and undertake continuous professional development.
6. Holding to a similar standard as the other elements of the science project, WEPOC programs should be reviewed by peers.
7. To improve performance and to ensure evidence-based outcomes, WEPOC should include evaluations appropriate to the individual WEPOC activities.
8. Successful WEPOC activities are inclusive and promote diversity.

While some of these principles may seem self-evident, it is noteworthy that in the evolving professional field of STEM WEPOC, these principles are only implemented in a piecemeal fashion in many ongoing and planned projects.

Rationales and Evidence Base

Although it is beyond the scope to include in this whitepaper, a set of evidence-based rationales were developed to justify these principles, especially in the context of large and international science projects. For a somewhat broader description, see e.g., the following presentation which describes this work:

https://conference.ipac.caltech.edu/wepec2017/system/media_files/binaries/2/original/Making_the_Case_presentation.pdf?1522100154
Signatories to the WEPOC Principles

The eight principles elucidated above were endorsed by the following attendees at the 2017 workshop. These WEPOC leaders from around the world signed as individuals and do not represent official views of their institutions and organizations at this time.

Additional leaders in astronomy and high-energy physics are invited to also endorse these maxims based on their own experience of how science projects most effectively advance their WEPOC goals. We advocate that these be adopted as cornerstone principles for WEPOC in the decade ahead.

• Amanda Bauer — LSST
• Charles Blue — NRAO
• Janesse Brewer — 23.4 Degrees
• Whitney B Clavin — Caltech
• Sandra Dawson — TMT Obs. Corp.
• Kristen Erickson — NASA Science Mission Directorate
• Valeria Foncea — ALMA
• William Garnier — SKA Organisation
• Ana Godinho — CERN
• Saeko S. Hayashi — Subaru Telescope
• Masaaki Hiramatsu — National Astronomical Observatory of Japan
• Lisa Hunter — UCSC & UH
• Suzanne Jacoby — LSST
• Hussein Jirdeh — Space Telescope Science Institute
• Farnaz Khadem — Caltech
• Mark King — NASA, Marshall Space Flight Center
• Amanda Kocz — Giant Magellan Telescope
• Peter Michaud — Gemini Observatory/AURA
• Terry O’Connor — Science and Technology Facilities Council, UK
• Saeko Okada — J-PARC Center
• Spencer Pasero — Fermi National Accelerator Laboratory
• Jeff Rich — Carnegie Observatories
• Valentina Rodriguez — Giant Magellan Telescope
• Gordon K. Squires — Caltech/IPAC – TMT
• Kathy Svitil — Caltech
• Michelle Viotti — NASA/JPL
• Megan Watzke — Chandra X-ray Center
• Jon Weiner — Lawrence Berkeley National Laboratory
• Hitoshi Yamaoka — the National Astronomical Observatory of Japan
• Katie Yurkewicz — Fermilab

Figure 1: Signatories to the WEPOC 2017 Principles for WEPOC Declaration

Recommendations:

“Research not communicated is research not done.” --Professor Anne Glover, former chief scientific adviser for Scotland and for the European Commission

WEPOC leaders in Astronomy from around the world are striving to set a foundation for all current and future science projects and facilities to adopt and implement. We recommend that as part of the Astro2020 report, and in particular to support a growing emphasis for robust, and professional WEPOC leadership in astronomy projects in the decade ahead, that the eight principles outlined in this whitepaper become part of the foundation for the State of the Profession in the decade ahead.

References: