

Pre-Service Educators Working Group Teleconference

Thursday, 7 October 2004 1:00-2:30 Eastern

Members Attending

Ilan Chabay, The New Curiosity Shop (Framework)
Larry Cooper, Science Mission Directorate
Stanley Jones, MARSSB
Lynn Narasimhan, DePaul
Laurie Ruberg, Co-Chair, MARSSB
Gregg Schultz, SECEF
Stephanie Shipp, Co-Chair, SCORE
Denise Smith, Co-Chair, ASO
Bill Waller, NESSIE
Darlette Powell, S2N2

Members Unable to Attend

Bernice Alston, Director, Division of Elementary and Secondary Education, NASA HQ
Jennifer Grier, SEU Forum
Art Hammond, SSE Forum
Elaine Lewis, SECEF
Julie Lutz, S2N2

1) Overview of why the WG has come together

- a. Potential for impact in pre-service is significant
- b. Opportunity for collaboration and consideration of a strategic/systemic approach
- c. Opportunity to introduce a new community to NASA resources and expertise
- d. President's Commission on the Implementation of US Space Exploration policy, call for training of pre-service teachers
- e. Research shows benefit of investing in content and pedagogical preparation of pre-service teachers – correlation to student performance and teacher retention

Comments

Pre-service educators are committed to earning a degree, allowing us to have a long-term interaction with a committed audience, in contrast with short term workshops.

There are challenges – pre-service educators are focused on understanding how to handle the classroom environment. It may be difficult to get them to move beyond this focus (and fear) to concentrate on the content.

Add the NRC report on *how people learn* by John Bransford to the resource list.

There is difficulty in getting materials into the pre-service curriculum, so we need to move forward with caution and make the preservice education programs aware that we are not trying to introduce or change pedagogy as pedagogy already is built into the pre-service programs. We are focusing on space science content and the contribution scientists and the E/PO network can offer to help teachers improve their content expertise, one of the provisions in No Child Left Behind.

Cosmos in the Classroom workshop saw significant involvement of pre-service teachers

2) Review of the WG's mission and strategy

Overall goal: facilitate better preparation of pre-service teachers who are going to teach space science.

- 1) Develop an understanding of pre-service programs and what their needs are. Assess what programs exist – starting with those in which OSS scientists and educators are involved. Learn more about other programs – in collaboration with faculty and organizations involved in pre-service. Use these relationships to select case studies and build a portfolio.

2) Concretely identify and communicate ways to meet those needs to the Support Network and the broader NASA community. What resources are needed, where are they needed, and how do we address those needs? How can a scientist fit in?

Comments

We need to identify a specific mission statement

We need to get feedback on our plans through the broader community

Greg Schultz is co-chairing a session on professional development at the ASP conference in Tucson in September 2005. They would be receptive to having a pre-service discussion/presentations

Greg has been presenting at the Association of Education Teachers of Science (AETS) for the last three years. We should have a presence at AETS meetings to learn more about working with pre-service educators from this community

We should consider NARST (primarily science research education) and AERA (primarily general education research) as possible future venues.

American Association of Colleges of Education

The AAS is hosting a K-12 pre-service session at their 205th meeting in San Diego, California on 9-13 January, 2005.

Meetings page: <http://www.aas.org/meetings/aas205/index.html>

Abstract Information: <http://www.aas.org/meetings/aas205/abstracts.html>

If you are interested, please submit an abstract by 9 pm Eastern on 20 October 2004.

Special instructions from Stacy Palen, Director, Ott Planetarium via Bill Waller:

- 1) When you register, fill out all your information as usual
- 2) Post your abstract
- 3) In the special instructions box, type: "Please place this abstract in the same session as Dr. Jessica Rosenberg's presentation Interactive Teaching as a Recruitment and Training Tool for K-12 Science Teachers"

This will ensure that all of the pre-service abstracts are included in the same session.

Please let me know if you plan to attend the conference and if you will participate in the session.

How do we get more astronomy into the hands of educators? Schools of education may be a key component; they have large numbers pre-service teachers – how can we access pre-service *faculty*?

Greg Schultz will pull together brief descriptions of all the professional societies so that the WG can better understand what these organizations do. The list will be circulated for the WG members to add to.

The approach of learning more and developing a deeper understanding seems a best first step. The WG members can attend the meetings. The WG also has the opportunity to host a conference to identify issues in getting space science into pre-service education venues / working with pre-service faculty through the SCORE Community Conferences Program. There were calls for such a conference at the last conference.

The WG needs to understand that there already are many requirements in the pre-service programs. It will be challenging to induce these programs/faculty to include space science.

Are there possibilities for expanding our definition of pre-service to the first two years of in-service? Many of these "new" educators might be open to content and mentoring. This may be a direction to go in the future, but we should focus our attention more narrowly at first to achieve concrete goals.

What directions do educators go? Do teachers of high school and middle school *tend* to go through the Masters programs? And elementary teachers *tend* to go through education programs? This is a question

we should investigate. It appears that activities may vary across programs and states. California trains a significant number of educators – a bachelor's degree in a subject is required beyond certification.

Do we try to make this OSS Support Network Wide? If we make this regional, will need to get brokers to buy in? The WG should start looking at the regions that are represented on the WG; can expand later.

3) Overview of MARSSB research efforts to date (Laurie Ruberg, with accompanying PDF) - Using space science as a context for teaching math and science among minority pre-service faculty

Comments

This overview provides a very helpful snapshot that already helps the WG with needs assessment. The WG can build a dialog with faculty using the responses as the start of a conversation

The MARSSB research provides a basis on which the WG can build; these types of questions can be examined in individual endeavors in different regions.

Clearly one finding is the lack of knowledge of space science by the pre-service (and faculty) educator. Elementary teachers face the barrier of often not specializing in a content area – so content knowledge is lacking. This is an entry point for our efforts in terms of content, but also in terms of familiarizing pre-service educators (and faculty) with NASA resources and expertise. We can help translate.

Maintaining professional currency is an issue for pre-service educators and faculty. Support for involvement in research also is needed. Again, there are opportunities that NASA brings to the table in terms of involving them in research (and educational research).

The WG needs to get more snapshots – broaden them to cover a larger part of space audience – and explore issues over time and evolution of programs as well.

The WG may want to consider approaching/involving other faculty members of math, science, technology education for pre-service educators

Need also to engage elementary and secondary faculty, administrators, and programs at community colleges, minority institutions.

4) Determine action items and time lines

We should start by going to professional conferences that focus on pre-service education and by inviting them to join us at our conference (*WG members will coordinate with each other and participate*)

Survey scientists about what they are doing in pre-service education – coordinate with AAS?

Survey the support network (E/PO specialists and researchers) to find out what is going on already. Identify collaborations between scientists and pre-service faculty (*Ruberg, Shipp, Smith will collaborate and initiate*)

Communicate with schools of education in our regions – where are they? How do we focus our efforts? Explore what is going on already. What initiatives they are interested in? What areas of research are they interested in? (*Each WG member*)