Broader Impacts in the Context of NSF Funding and the Science of Biological Anthropology

Carolyn L. Ehardt

Program Director

Biological Anthropology Program

AAPA 2014 – Calgary, Canada
11 April 2014

Broader Impacts

- **What are the broader impacts of the proposed activity?**

  – **How well does the activity advance discovery and understanding while promoting teaching, training, and learning?**

  – **How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)?**

  – **To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships?**

  – **Will the results be disseminated broadly to enhance scientific and technological understanding?**

  – **What may be the benefits of the proposed activity to society?**

Examples of Broader Impacts

- **Full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM)**

- **Development of a diverse, globally competitive STEM workforce**

- **Improved STEM education and educator development at any level**

- **Increased public scientific literacy and public engagement with science and technology**

- **Improved well-being of individuals in society**

- **Increased partnerships among academia, industry, and others**

- **Enhanced infrastructure for research and education**

- **Improved national security**

- **Increased economic competitiveness of the United States**

Advance Discovery and Understanding While Promoting Teaching, Training and Learning

• **Integrate research activities into teaching** at all educational levels (e.g., K-12, undergraduate science majors, non-science majors, and graduate students).

• **Include students as participants** in the proposed activities, as appropriate.

• **Participate in professional development of K-12 science teachers**.

Advance Discovery and Understanding While Promoting Teaching, Training and Learning (cont'd)

• **Develop research-based educational materials or contribute to databases useful in teaching.**

• **Partner with researchers and educators to develop effective means of incorporating research into learning and education.**

• **Encourage student participation at meetings and activities of professional societies.**

• **Establish special mentoring programs for high school students, undergraduates, graduate students, and technicians conducting research.**

Broaden Participation of Underrepresented Groups

- **Establish collaborations with students and/or faculty who are members of underrepresented groups.**

- **Include students from underrepresented groups as participants in the proposed research.**

- **Establish research and education collaborations with students and faculty from non-Ph.D.-granting institutions and those serving underrepresented groups.**

- **Make campus visits and presentations at institutions that serve underrepresented groups.**

Broaden Participation of Underrepresented Groups (cont'd)

• **Establish collaborations with faculty and students at community colleges, colleges for women, undergraduate institutions, and EPSCoR institutions.**

• **Mentor early-career scientists from underrepresented groups who are submitting NSF proposals.**

• **Participate in developing new approaches (e.g., use of IT/connectivity) to engage underserved individuals, groups, and communities in science.**

• **Participate in conferences, workshops and field activities where diversity is a priority.**

Enhance Infrastructure for Research and Education

• **Identify and establish collaborations between disciplines and institutions,** among the **U.S.** academic institutions, industry and government, and with **international** partners.

• **Stimulate and support the** **development and dissemination of next-generation instrumentation, multi-user facilities, and other shared research platforms**.

• **Maintain, operate and modernize shared research infrastructure,** including facilities and science and technology centers.

• **Upgrade the computation and computing infrastructure, including** **advanced computing resources and new types of information tools** (e.g., large **databases**, networks and associated systems, and **digital libraries**).

• **Develop activities that ensure that** **multi-user facilities are sites of research and mentoring for large numbers of science students**.

Broad Dissemination to Enhance Scientific and Technological Understanding

- **Partner with museums, nature centers, science centers, and similar institutions to develop exhibits in science.**

- **Involve the public or industry, where possible, in research/education activities.**

- **Give science presentations to the broader community (e.g., at museums and libraries, on radio shows, and in other such venues).**

- **Make data available in a timely manner by means of databases, digital libraries, or other venues.**

Broad Dissemination to Enhance Scientific and Technological Understanding (cont'd)

- **Publish in diverse media** (e.g., non-technical literature, and websites, press kits) to reach broad audiences.

- **Present results** in formats useful to **policy-makers, members of Congress, industry, and broad audiences**.

- Participate in **multi- and interdisciplinary conferences, workshops, and research activities**.

- **Integrate research with education activities** in order to communicate in a broader context.

Benefits to Society

• **Demonstrate the linkage between discovery and societal benefit by providing** *specific* **examples and explanations regarding the potential application of research results.**

• **Partner with academic scientists, staff at federal agencies and with the private sector on both technological and scientific projects to integrate research into broader programs and activities of national interest (e.g., policy formulation; management plans).**

• **Analyze, interpret, and synthesize research results in formats understandable and useful for** *non***-scientists.**

• **Provide information for policy formulation by Federal, State or local agencies – national and international (e.g., management plans).**

- ✓ **Strong**

- ✓ **Creative**

- ✓ **Beyond 'expectation'**

- ✓ **Tied to the research**

- ✓ **Fully reasoned/substantiated**

- ✓ **Measures of success**

- ✓ **Budget, if required (mindful of limitations)**

IMPORTANT!!!