

**Staff Response
To the Committee of Visitors (COV) Report
Discovery Research K-12 (DR K-12) Program
COV Meeting of October 22-23, 2009**

On October 22-23, 2009, a Committee of Visitors was convened to review the Discovery Research K-12 Program from FY 2007 – 2009. This response addresses the recommendations included in the COV report. Responses are organized in the order prescribed by the FY 2009 Report Template for NSF Committees of Visitors. We have not reproduced the entire COV report, only verbatim excerpts that describe recommendations to the program.

**PART A. INTEGRITY AND EFFICIENCY OF THE PROGRAM'S PROCESSES
AND MANAGEMENT**

A 1.2 COV Recommendation:

The COV noted that panelists tend to respond in greater detail to the intellectual merits of proposals, especially those that are research-focused, because panelists have a frame of reference. Assessments about broader impacts tend to be more speculative in nature. This holds true for both funded and declined DR K-12 proposals across the board. The COV recommends that DR K-12 program staff give thought about how to appropriately weight broader impacts for non-research-based projects as well as provide guidance to PIs and panelists on how to assess and discuss the broader impacts potential of projects.

Response:

It is true that reviewers may pay greater attention to the intellectual merit of a proposal than its broader impacts, limiting broader impact remarks to the potential for project results to become widely accepted in STEM education practice and to broaden participation in STEM disciplines. The DR K-12 Program Officers stress both merit review criteria in the program solicitation, in pre-panel webinars for reviewers, in person at orientation sessions before panels begin, and during the panel meetings. The program will review its solicitation and presentation materials to see if there are ways to strengthen this emphasis. In the webinar and orientation materials we will use examples of reviews that have been effective in addressing both criteria. We will also draw on recommendations in a broadening participation Framework for Action that is available on the NSF web-site.

A.1.7 COV Recommendation

For FY2009, the COV noted a six point one percent (6.1%) increase in the number of proposals requiring a time-to-decision of greater than six (6) months from FY2008. Is this increase attributable to the complexity of the proposals, resource constraints on the program staff, or other factors? What actions could the program staff take to further improve on the overall dwell time of DR K-12 proposals?

Response:

The most likely reason for this modest increase was due to time constraints on Program Officers and the Division Director. The number of submitted proposals (in DR K-12 and in the other programs with which DRL Program Officers work) has increased significantly without any corresponding increase in the number of Program Officers. For example, the DR K-12 program experienced a 35% increase in the number of proposals for the 2010 competition.

This past year, some proposals have been "held" deliberately because of the potential for co-funding from other sources (e.g., ARRA funds, climate change education funds) that did not materialize. Furthermore, as the DR K-12 program continues to increase its emphasis on high quality research design and methodology, Program Officers find themselves spending more time on project negotiations to enhance those aspects of development-intensive proposals. The complexity and increased emphasis on

appropriate research design has resulted in longer and more detailed review analyses and additional negotiations with other program staff and the division director.

Taken together, these factors probably explain the modest up-tick in proposal dwell times. However, we will continue to monitor the situation closely and make every effort possible to ensure timely decisions on submissions.

A.2.2 COV Recommendation

School system practitioners – curriculum coordinators, Presidential awardees, and exemplary K-12 teachers – are not always included on panels where they have specific expertise. Increasing the participation of reviewers from these groups would serve to strengthen DR K-12 panels.

Going forward, the Committee also recommends that NSF provide future COVs with a matrix of information that highlights the areas of expertise and qualifications by proposals and reviewers. This would allow the COV to better ascertain the appropriateness of panel composition.

Response:

These practitioners are often included in DR K-12 panels, although we agree that they are not always on every panel. As the DR K-12 emphasis has shifted away from projects that offer direct service to schools and teachers toward projects aimed at developing and studying resources, models, and technologies with potential for broad implementation, we have found it necessary to increase the proportion of evaluation experts, assessment experts, research methodologists, and STEM content experts on our panels. Nonetheless, we will continue to use practitioner involvement as an explicit criterion in panel formation and to draw on their expertise through ad hoc reviews as well.

The matrix suggestion is an excellent idea, and we will prepare one for the next COV.

A.2.2 COV Recommendation

While there appears to be reasonable geographic representation of states within the reviewer pool, the COV recommends that the program step up efforts to better balance the distribution of reviewers across a greater number of states. ... While the COV commends DR K-12 current efforts to bring in scholars, researchers, and practitioners, there is significant opportunity to do more. ... The COV encourages DR K-12 to target reviewer participation from underrepresented institutions including small universities and four (4) year colleges along with two (2) year or community colleges.... The COV would find it helpful to know the DR K-12 program goal for minority participation on panels in order to assess the balance of reviewers in this area. The large number of reviewers who did not self-report gender, minority status, institution types, and geography (to a lesser extent) troubled the group. The COV recommends that DR K-12 consider an alternate, systematic method for assessing and tracking panel diversity.

In addition, the COV recommends that DR K-12 establish a category for reviewers from the K-12 system as well as non-governmental agencies including EDC, Horizon, and CAST.

Finally, a matrix that shows the participation of institution types and underrepresented groups by proposal and reviewer would benefit future COVs.

Response:

The academic institutions are not equally distributed across the United States; the majority of non-profit educational research institutions are concentrated in less than six states. This unevenness is reflected in the geographic distribution of the reviewers. NSF strives to have proposals merit-reviewed by experts in the field, and very few community college faculty have expertise in K-12 educational research. For that reason (and because our program focuses on improving PK-12 STEM education), community college faculty do not make up a large number of our reviewers.

The DR K-12 program has a strong commitment to demographic diversity on its panels, especially working to assure significant participation by researchers and practitioners from groups that are traditionally under-represented in STEM fields. The success of this effort is not always reflected in the available data about panelists. While we encourage all reviewers to complete the demographic survey when they register in FastLane, this response is, by Federal Law, voluntary. The DR K-12 program staff will continue to be attentive to achieving demographic balance in all of our panels.

We agree that a system with more refined categorization of reviewer expertise would be useful. Fastlane does not seem to be an effective system for keeping such records, but within the DR K-12 program we already have some informal data-bases that provide the recommended information. We will make efforts to extend that system to the whole program.

We think it would take two matrices to convey the information about institutional and personal demographics of the reviewers, but agree that this information would be useful.

A.2.4 COV Recommendation

Generally speaking, it appears that the DR K-12 reviewer pool is reasonably balanced across geography, institution types, and gender. Minority participation at almost sixteen percent (16%) seems reasonable to the COV. However the group would benefit from knowing the program goal in this area. The COV recommends that DR K-12 look for opportunities to broaden its impact on non-research-based institutions.

Response:

Competitive DR K-12 proposals must be research-based. Therefore, we strive to find reviewers who understand contemporary standards for design, development, research, and evaluation and who are engaged in scientific, mathematical, or educational research themselves. It is difficult to find reviewers with those qualities from non-research-based institutions. However, we will make renewed efforts to find appropriate experts who also represent the perspective of STEM education at non-research-based institutions.

A.3.7 COV Recommendation

While the number of awards to new investigators seems reasonably appropriate, the COV recommends that DR K-12 make serious effort to increase the number of first time awardees. The COV heartily supports the reinstatement of NSF outreach workshops that acquaint prospective NSF applicants with important information on grant writing. Programs such as the proposal development workshop recently conducted at Spelman College are encouraged. The COV also recommends that including individuals who have not received an NSF grant on panels is an excellent strategy and should be continued.

Response:

We agree with these comments and we will continue with our efforts. In addition to special workshops like that at Spelman, program officers make regular presentations at meetings of professional organizations concerned with STEM research and development. DRL program officers participate in cross-foundation outreach and proposal development activities for researchers at minority institutions such as the annual CAREER workshops supported by Quality Education for Minorities (QEM). Those venues are especially helpful points of contact with new investigators. We will also ask the CADRE resource network for help in spreading word about research and development funding opportunities provided by our program.

A.3.8 COV Recommendation

It is the COV's position that the geographical distribution of awards is not an appropriately balance in the DR K-12 portfolio. The Committee acknowledges the reality that associations and experience in proposal development advantage some institutions and regions, however it finds there is a serious need for capacity building for proposal development in specific states and regions of the country.

Response:

We recognize that there are 16 states where institutions do not yet have a DR K-12 award. This is undoubtedly due in part to the fact that the program has only been in existence for three years. For example, it took 15 years before the ATE program made an award in Wyoming, and ATE makes three times as many awards each year than the DR K-12 program. It is also the case that some of the most populous states are home to academic and other institutions with strong STEM research and development capacity.

Nevertheless, we will look for opportunities to solicit proposals from institutions in a wider geographic area. We will prepare a map for use in presentations so we can point out our desire for proposals from "missing" states. EHR Program officers also actively participate in outreach efforts such as 'NSF Days' across the country.

A.3.9 COV Recommendation

The committee would like more information on the impact the shift toward an emphasis in research within DR K-12 has had on institutional involvement or types of institutions receiving awards. The COV's review of the limited institutional types information suggests that a significant majority of funded projects appear to be coming largely from Top 100 Research institutions and nonprofit organizations. The COV asserts that there are significant opportunities to strengthen DR K-12's impact by stepping up outreach efforts and increasing visibility among other institution types. Such efforts might include institutional capacity building activities in the area of proposal development that would serve to increase the knowledge and expertise of potential proposers.

Additionally, given that the K-12 system is a major focus of DR K-12, the COV recommends that DR K-12 target institutions that address pre-service and in-service education for teachers as well as consortia. The vast majority of institutions involved in teacher preparation do not come from the Top 100 Research institutions so the potential to have interesting research projects from these institutions is not as great. Finally, the COV encourages DR K-12 to look for opportunities to encourage collaborations with two (2) and four (4) year institutions.

Response:

We will compare the institutions who have received DR K-12 awards with those who received awards in the Teacher Professional Continuum (TPC) program, and the Instructional Materials Development and Teacher Enhancement programs as well. We will look at the success rate of proposals as well as the actual number of awards. As part of our overall effort to encourage successful proposals from a more diverse array of institutions, we reinstated a preliminary proposal option in the 2010 competition and we are studying the effects of that activity in generating proposals from individuals and institutions that have not previously been part of the DR K-12 community.

As part of the broader DR K-12 commitment to building institutional capacity for important development and research work, we have recently funded a follow-up to the Centers for Learning and Teaching program that will provide sustained professional development and support for beginning STEM education researchers. That program is particularly focused on support of new researchers who find themselves at institutions that are not in the prime research institutions, aiming to help them build on their doctoral preparation to develop personal research programs.

We agree with the comments about importance of engaging major teacher preparation institutions in the NSF-funded research and development effort. We have been disappointed ourselves by the small number of proposals that focus on pre-service teacher education. Given the prominence of the Noyce program, it may be that institutions interested in pre-service education are engaged in applications to that program, which provides scholarships and fellowships for prospective teachers, as well as funding for development of innovative STEM teacher preparation programs. We also recognize that many times four-year institutions are recipients of sub-awards, but this level of participation is not reflected in our data collection.

In our proposal review process we will seek to identify projects where collaboration of research-intensive institutions with four-year teacher preparation institutions would be productive and encourage such

collaborations through award negotiations and feedback suggested revision and resubmission of project ideas.

A.3.10 COV Recommendation

The COV highly recommends that within the DR K-12 listing of awards, there should be a field that clearly identifies the disciplines and sub-disciplines in which the project is focused. For example, science sub-disciplines would be biology, physics, chemistry, earth science, interdisciplinary, and so on; mathematics sub-disciplines would be number, algebra, geometry, statistics, and data analysis. The sub-disciplines for engineering and technology should also be identified.

Response:

We agree that this would be a desirable way of categorizing awards. We do have a template for abstracts that recommends specifying sub-disciplines, as well as grade levels, target audiences, etc. However, a data field would streamline a search process. Subsequent to the COV meeting, we have completed a descriptive review of the current DR K-12 portfolio that is organized by program challenge, disciplinary focus, and grade level. This portfolio analysis will be helpful in making future funding decisions and in external critical reviews of the program balance. We are also exploring options for making that portfolio review available to the public on our program web-site.

A.3.11 COV Recommendation

The COV also noted that the number of minorities and females involved in DR K-12 proposals increased steadily each year between FY2007 and FY2009, a positive development. More specifically, the COV recommends that DR K-12 continue its efforts to increase the representation and participation of individuals from underrepresented populations into the program. Inclusivity related to these populations would ideally include capacity building.

Response:

We intend to continue our existing efforts and take advantage of new opportunities as they arise, especially through engaging minority representatives on review panels—an often effective way of getting potential PI acquainted with the funding opportunities of our program..

A.3.13 COV Recommendation

The COV strongly recommends that DR K-12 aim to increase the number of awards to community colleges and four-year institutions by funding projects related to teacher preparation. The balance in the portfolio would also benefit from broader geographical distribution of project awards. Stepped up outreach efforts such as proposal development workshops in institutions and/or states underrepresented in the portfolio would serve to strengthen the quality of proposals and ultimately positively impact the quality of the portfolio.

Response:

The Math-Science Partnership and Advanced Technology Education programs already support innovative projects in teacher preparation at community colleges to some extent, although the ATE focus is on STEM technology education, rather than on STEM education in general. DR K-12's focus on educational research reduces, although certainly does not eliminate, the likelihood of participation by community colleges. Four-year institutions are good candidates for an increased number of awards.

To encourage participation of two-year and four-year teacher preparation institutions in DR K-12 projects, as initiators or partners, we will also include special language in the next revision of the program solicitation Challenge 3 on teacher development.

A.4.1 COV Recommendation

The COV recommends that DR K-12 focus attention on the following: Make better use of the annual PI meetings to develop and refine best practices critical to increasing DR K-12 program impact and sustainability over time. Explore new and more effective ways to foster partnerships among projects that

have similar themes and foci. Cluster projects with similar goals, categories, subcategories, and components. Set aside funding to facilitate collaboration in conjunction with awareness. Think beyond advisory guidelines and stimulate PIs to think creatively about how they evaluate their projects. Raise the bar on the quality of the annual project reports. Encourage PIs to focus on results and findings rather than inputs and activities. Look for opportunities to improve the portfolio analysis system for DR K-12.

Response:

We agree with these recommendations. In fact, the CADRE resource network for the DR K-12 program is already engaged in a variety of initiatives to achieve those goals. For example, the most recent DR K-12 PI meeting allowed for ample time for PIs to meet with program officers and to arrange "birds of a feather" meetings whereby projects with similar interests could meet and discuss common issues. Those meetings have led to formation of common-interest working groups that are holding special working meetings outside of and within the larger PI meetings.

We expect annual reports to be thorough, but acknowledge that annual reports we receive from projects in their first year or two necessarily focus on inputs and activities as it is too early to report results and outcomes. Because DR K-12 is a new program, most of the annual reports available to the COV were preliminary in nature. We think this issue will resolve itself by the time of the next COV, when there will be some projects that have either been completed or are mature enough to report results.

We are presently looking into ways to improve the portfolio analysis of the DR K-12 program. This is one of the charges to the CADRE resource network, and a first pass at a critical portfolio analysis has been completed since the COV meeting.

A.4.2 COV Recommendation

The COV supports and encourages program management's use of workshops and other field-engaging activities such as surveys or annual PI meetings to stay plugged into the big ideas/questions, pressing problems in the field, and other issues in STEM. Debriefing sessions at the end of panels, although not as systematic as workshops, also provide opportunities to obtain insight/feedback on emerging research and education topics and issues.

Response:

We will continue our activities to keep the lines of communication between the community and NSF open. A striking example of such initiatives is the December, 2009 "blue sky" workshop at which program officers and an array of outstanding STEM education experts examined prospects for the Future of STEM Curricula and Learning Environments. The report from that meeting and a planned follow-up in May, 2010 should help us to set an exciting research and development agenda for the program and for STEM education more broadly.

Another particularly effective way to keep the DR K-12 program in touch with the most important problems and work of STEM education developers and researchers is through the standard NSF practice of hiring rotator program officers. We are actively engaged in recruiting such experts for stints in the program officer work.

A.4.5 COV Recommendation

The COV highly encourages DR K-12 efforts to develop and implement a program evaluation strategy and plan to track the program's process in meeting overall goals.

Response:

We are presently engaged in just such an activity, which is necessary both for required accountability and for continuing program improvement and revision. Drs. Leslie Goodyear and Sharon Lynch are leading this activity for the DR K-12 program.

PART B. RESULTS OF NSF INVESTMENTS

B.3 COV Comment

The COV determined that only the DR K-12 FY2007 Program Solicitation highlighted cyberlearning as one area of emphasis. Cyberlearning was not mentioned in either the FY2008 or FY2009 solicitation.

Response:

Cyberlearning is indeed mentioned in all of the solicitations, several times. Furthermore, cyberlearning was a major consideration of the December 2009 "blue sky" workshop described above.

B.3 COV Recommendation

Another issue noted by the COV is the lack of validated research instruments developed in DR K-12 projects. The community is not using research instruments that have been tested. Instead, projects tend to develop their own instruments specific to the individual projects. It is the COV's position that this phenomenon hinders the advancement of the field.

Response:

We agree with this observation. Unfortunately, it is a problem of the STEM education research field more broadly. We will make every effort to study proposals to see that those using assessment instruments are, as far as possible, using widely available valid and reliable instruments. The CADRE Resource Network has as one of its charges to serve as a clearinghouse for projects to share research and evaluation instruments.

Comment [JFM1]: Could also quote from the solicitation, which I believe calls for validity/reliability info on instruments to be used. And, hasn't DRK-12 funded some instrument development? Could mention that.

PART C. OTHER TOPICS

C.1 COV Recommendation

The COV strongly recommends that the program support a project to synthesize legacy outcomes and impacts from previous NSF programs that are viewed as transformative. The Committee believes that such an effort would increase the likelihood of creating potentially transformative projects within DR K-12.

To fill another important gap in the program, the COV suggests that DR K-12 expand the portfolio to include projects that explore the learning of underrepresented groups of students with themes that range from individual cognition to system-wide issues.

In Part A.4.3 of this report, the COV acknowledged that the third and most recent program solicitation appropriately addresses current challenges in the STEM field. While the challenges seem to be appropriate, the COV would like to know the extent to which the program is receiving proposals in these areas. How does NSF monitor the community's response to the specific challenges in the solicitation? What happens if there is a general lack of interest from the field in a particular challenge, if the field isn't ready for it, or if there is a lack of capacity in the field to respond?

As the program evolves, the COV recommends that DR K-12 continue its emphasis on Challenge 1 (Assessment) and Challenge #4 (Scaling Up/Systems). The COV feels challenge 4 is critical to systemic reform in K-12. Moreover, it is the COV's position that DR K-12 should be broadened to include research on pre-service, teacher prep, continuing education, learning continuum, and staff development at the university level. K-12 and Higher Ed are inextricably intertwined and DR K-12 should be extended and renamed DR K-20.

With respect to capacity building, the Committee strongly urges the DR K-12 program staff to continue outreach programs that help DR K-12 achieve specific program targets by familiarizing geographic regions, institutions, and underrepresented groups with NSF proposal writing submission guidelines and procedures.

Response:

Over the past year program officers have explored a variety of possible strategies for documenting and analyzing the legacy effects of NSF investments in STEM education. While we have not yet acted to engage some individual or group in this work, it is a project that is on our agenda for action.

Limited attention to research on learning of underrepresented groups may be a perceived gap in the DR K-12 program, but it is not a gap in the portfolio of DRL, EHR, and NSF as a whole. For example, the REESE program in DRL and the Science of Learning Centers program in NSF's Division of Social, Behavioral and Economic Sciences focus on individual cognition; numerous programs in the Division of Human Resource Development (such as GSE, RDE, and HBCU-UP) focus on STEM education in underrepresented groups; and the Math and Science Partnership program in the Division of Undergraduate Education focuses on system-wide issues.

The DR K-12 solicitation explicitly invites proposals to address our Challenge 2: Assuring that **all students** have the opportunity to learn significant STEM content. This challenge has encouraged the field to submit a number of proposals that aim to develop resources, models, and technologies specifically targeted on increasing the participation and success of traditionally under-represented groups. Each year at least one full review panel considers proposals that address that challenge, and we are currently funding a variety of such projects, ranging from exploration of effects from culturally responsive curriculum materials to strategies for teaching students with specific disabilities.

Nonetheless, as we work on the next revision of our solicitation, we will make explicit efforts to strengthen the call for development and research projects focused on improving the learning of students from traditionally underrepresented groups.

Concerning the coverage of the portfolio more broadly, number of proposals that address each challenge is monitored. In fact, as mentioned above, we have recently completed a descriptive portfolio review that categorizes current funded projects by Challenge addressed. The fewest number of proposals have (quite understandably) been submitted to challenge 4 (scale-up), but even there we have always had enough proposals to justify a full panel review and significant investments.

Experience from the predecessor programs, especially IMD, is that it sometimes takes several years for the field to respond to a given emphasis, or challenge. As a result, we believe that it is important to maintain a level of stability in the stated challenges.

In the range of outreach activities described above, we will make explicit efforts to highlight aspects of our desired program portfolio that clearly need greater attention. Our solicitation is designed to reflect concerns that are most prominent in the field, though we try to encourage work at the cutting edge. We have made some specific moves to build capacity of the field, notably the Centers for Learning and Teaching and now the REESE FIRE program designed to attract academics with cognate specialties into STEM education research. We described in an earlier response our DR K-12 initiative to support sustained professional development of researchers who have emerged from the Centers for Learning and Teaching capacity-building programs that were part of the DR K-12 portfolio.

We agree with the suggestion that DR K-12 should continue emphasis on assessment and scale-up and we will work to help appropriate proposals be funded

While we agree with the K-20 systemic conception in principle, the integration of all those concerns is a policy challenge for the EHR directorate more broadly. Currently, there are separate programs in different divisions that address aspects of the problem. For example, the Course, Curriculum, and Laboratory Improvement program, the Math and Science Partnership program, the Noyce Scholarship program, the Applications of Advanced Technology program, and the Science, Technology, Engineering, and Mathematics Talent Expansion program are all concerned with aspects of the overall picture.

C.2. COV Recommendation

Comment [JFM2]: Should we be including any specific numbers on this? And, didn't really answer the questions in the last sentence.

Comment [JFM3]: Could say that we will strengthen the call for work on preservice teacher prep, and learning continuum.

The COV encourages DR K-12 to develop a more effective, impactful approach to documenting project successes within the program portfolio. "Highlights" are not enough. Encourage more rigorous thinking about broader impacts as prospective PIs develop proposals and beyond project initiation.

Response:

Help in disseminating findings of DR K-12 projects is a specific task of the CADRE Resource Network, so we expect them to take the lead in responding to this challenge. With recent encouragement from the Department of Education, we have also explored a variety of strategies for informing the field of STEM educators about resources produced by NSF-funded research and development projects. A pilot website "nsfresources.org" is already up and schools applying for 'race to the top' funding have been encouraged to consider using those resources in their work.

C.3. COV Recommendation

In DR K-12, as with other programs in the NSF, there is not a clear distinction between research and evaluation. Look for opportunities to sharpen the distinctions between the two.

Response:

We have worked hard to sharpen the distinction in our solicitation and will continue to attend to this on-going challenge. In particular, when the DR K-12 solicitation is revised in the coming months, we will revisit the sections that explain expectations for project evaluation activities and how they differ from core research tasks of the projects.

C.4. COV Recommendation

The COV recommends that DR K-12 program staff evaluate the effectiveness of its dissemination efforts to determine if the program getting the most "bang for its buck" where dissemination is concerned. Identify which dissemination efforts are successful and which are not. Build on the strengths and look to eliminate or retool strategies that aren't working.

Response:

We anticipate that the Resource Center Network will assist projects with their dissemination activities, and provide models of successful dissemination strategies.

C.5 COV Recommendation

In terms of improvements to the process, the COV recommends that NSF program staff provide information to participants earlier in the process. It would also help if there were a way to easily identify or isolate the jackets assigned to each COV panelist. The Committee found that some of the questions in the template were ambiguous with respect to the DR K-12 program. There was also some mild frustration among COV members resulting from incomplete data that prevented the team from thoroughly responding to specific questions in the Part A.3. Review of Portfolio and Part B. Results of NSF Investments. Additionally, the Committee did not have access to certain files (e.g., DR K-12 Program Logic Model, NSF Highlights, and Insights handouts) on the list of documents supplied to the COV.

Response:

We regret the lack of access to desired materials and data, and will take steps to improve the process. We did provide a matrix matching the report template questions to data sources, and will make this more prominent in COV member materials in the future.

Comment [JFM4]: The question seems to me to be about the DRK-12 program's own dissemination efforts, about the program. (Eg., sessions at professional meetings, etc.) I think this needs a different kind of response.

DR K-12/REESE Joint Considerations Narrative

COV Recommendation

To ensure more effective joint consideration of DR K-12 and REESE in the future, the COV recommends that program management look for opportunities to standardize (where possible) and improve on the portfolio analysis process for both DR K-12 and REESE.

Response:

We agree that a standardized portfolio analysis procedure would be desirable. We will take steps to improve our procedures. The CADRE Resource Network is engaged in such a portfolio analysis for the DR K-12 program and we have also funded collaborations between the CADRE and ARC (REESE Resource Network) programs that should facilitate such coherent portfolio analysis planning.

Comment [JFM5]: This is very high priority; we need good portfolio analyses for lots of reasons, not only COVs. Should say more here about what we are doing (what are we doing?) to make progress on this. Perhaps hire a contractor to do a division-wide portfolio analysis? I know that the resource network leads are coming together next week and this topic should be on their agenda. Please be sure to talk to Dave U. about this.

COV Recommendation

In terms of the complementarity between the programs, the subcommittees found that there are real ambiguities in the field about the distinctions between DR K-12 and REESE. The extremes are clear – basic versus applied – however the overlap between the programs seems substantial enough to justify giving serious thought to options that will improve understanding and/or mitigate confusion in the field. Accordingly, the subcommittees highly recommend that the NSF think about three potential options: sharpening the distinctions between the programs, consolidating the programs into one, or looking at some combination of the two.

Response:

We recognize this ambiguity. Sometimes Program Officers struggle with it as well. We will look into ways to sharpen the distinction between the two programs and/or finding ways that their efforts can complement each other well. Regular interaction of REESE and DR K-12 program officers means that we can generally find the right home for any particular proposed project, and we have frequent internal conversations about the overlap and distinctions of the program solicitations. Based on the most recent set of proposals and panel reviews, we are encouraged that the field is beginning to get clarity of the two programs' definitions as well.

Comment [JFM6]: I think we could have a good division-wide discussion about this; shouldn't necessarily jump to the conclusion that sharpening the distinction is the only solution. Probably need to have a stronger answer here about how we will approach this challenge, rather than to just say we will look into it.

COV Recommendation

Both DR K-12 and REESE use formal and informal methods (e.g., panel debriefings, annual PI meetings, workshops, etc.) to identify emerging concepts in research and/or development as well as sow the seeds for potentially transformative projects. The subcommittees encourage the continued use of these approaches. We also recommend that program staff for both DR K-12 and REESE seek to further leverage future COVs as an additional source of ideas about emerging concepts. Given the in-depth review of the portfolio by the COV team members, big ideas, such as thematic research on cognition and minorities, are just as likely to come from a COV as from other external sources.

Response:

We appreciate the input from the COV members and will continue to be receptive to input and guidance.