

**FY 2009 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)**

The table below has been completed by program staff.

Date of COV: Thursday September 10 and Friday September 11, 2009
Program/Cluster/Section: Research in Disabilities Education Program (RDE)
Division: Human Resource Development
Directorate: Education & Human Resources
Number of actions reviewed: 33 proposals Awards: 18 (4 Alliance, 3 DEI, 11 Research) Declinations: 15 (3 Alliance, 3 DEI, 9 Research) Other: N/A
Total number of actions within Program/Cluster/Division during period under review: 145 proposals Awards: 31 (6 Alliance, 5 DEI, 9 Research) Declinations: 113 (12 Alliance, 30 DEI, 71 Research) Other: In FY 2006, 1 research proposal was returned without review, so there was a total of 145 proposals under review.
Manner in which reviewed actions were selected: Selection of jackets began with a random sample of awarded and declined proposal numbers ending in 3, 5, and 9. Where too few jackets were pulled in a category based on the random numbers, proposals were chosen by selecting those proposal numbers ending in 7, then 1, then 0. Where too many proposals were pulled in a category, a distribution of proposals ending in the three primary numbers (3, 5, and 9) was included.

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

Briefly discuss and provide comments for *each* relevant aspect of the program's review process and management. Comments should be based on a review of proposal actions (awards, declinations, and withdrawals) that were *completed within the past three fiscal years*. Provide comments for *each* program being reviewed and for those questions that are relevant to the program under review. Quantitative information may be required for some questions. Constructive comments noting areas in need of improvement are encouraged.

A.1 Questions about the quality and effectiveness of the program's use of merit review process. Provide comments in the space below the question. Discuss areas of concern in the space provided.

<p>QUALITY AND EFFECTIVENESS OF MERIT REVIEW PROCESS</p>	<p>YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE¹</p>
<p>1. Are the review methods (for example, panel, ad hoc, site visits) appropriate?</p> <p>Comments:</p> <p>Review panels average about ten individuals per cycle and four expert reviewers per proposal. Gender of panelists appears to be well balanced; as is reasonable representation of race or ethnicity, although the relatively large proportion of unreported cases makes this supposition less clear. Geographical representation appears proportional to population; nevertheless, plains and mountain west states seem underrepresented. Representation of panelists with disabilities appears to be increasing over recent years. Although a small number of mail reviews have been conducted. Site visits and reverse site visits are conducted as needed. Geographical representation of reviewers appears to be considered only in terms of state. The COV suggests that an equally important way to consider the geographic variable is in terms of whether the location or the expertise of reviewers adequately represents rural areas and their issues related to people with disabilities in STEM fields (especially regarding pre-college education), in contrast to urban (including suburban). See also A.3.8</p>	<p>YES</p>
<p>2. Are both merit review criteria addressed</p> <p>a) In individual reviews? Virtually all reviews address both the intellectual merit and broader impact criteria.</p>	<p>YES</p>

¹ If "Not Applicable" please explain why in the "Comments" section.

<p>b) In panel summaries? All panel summaries address the intellectual merit and broader impact criteria where inclusion of panel summaries was appropriate. However, in FY2008 proposals deemed “noncompetitive” did not include panel summaries.</p> <p>A number of panel summaries, perhaps 20%, address both merit review criteria but are not clearly identified under “intellectual merit” or “broader impacts.”</p> <p>c) In Program Officer review analyses? All Program Officer review analyses address both merit review criteria; one proposal addresses merit criteria although labeling is not clear.</p> <p>Comments:</p> <p>The review process calls for explicit definition of both the intellectual and broader impact criteria. In some instances, summaries appear to be unclear. To avoid ambiguity, the COV suggests you consider more explicitly labeled review criteria in panel summaries.</p>	
<p>3. Do the individual reviewers provide substantive comments to explain their assessment of the proposals?</p> <p>Comments:</p> <p>Overall, reviewers provide commentary that is thorough, substantive, and of high quality. Reviewers give meaningful feedback on intellectual merits and broader impacts, and address areas of strength as well as weakness in individual proposals. This is particularly true when one considers the information provided across individual reviewers in panels. Between reviewers, a very substantial variability is noted in the quantity of feedback and the specificity of feedback intended to lead to improvements in future proposals.</p>	<p>YES</p>
<p>4. Do the panel summaries provide the rationale for the panel consensus (or reasons consensus was not reached)?</p> <p>Comments:</p> <p>The panel summaries are well written and appear to be a clear and thorough representation of their recommendations. Panelists identified overall strengths and weaknesses, gave constructive feedback, and clearly stated the overall rationale for consensus. In this review period, the panelists appeared consistent in the application of review criteria. The sample we reviewed for our COV report, disclosed no cases where lack of consensus at the original proposal review stage occurred.</p>	<p>YES</p>

<p>5. Does the documentation in the jacket provide the rationale for the award/decline decision?</p> <p>(Note: Documentation in jacket usually includes context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), program officer review analysis, and staff diary notes.)</p> <p>Comments:</p> <p>Rationale for award/decline decision appears clearly stated and flows very consistently and clearly from individual reviews to panel summaries to review analyses and other sources. The COV finds the basis for evaluations very clearly documented.</p>	<p>YES</p>
<p>6. Does the documentation to PI provide the rationale for the award/decline decision?</p> <p>(Note: Documentation to PI usually includes context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), and, if not otherwise provided in the panel summary, an explanation from the program officer (written or telephoned with diary note in jacket) of the basis for a declination.)</p> <p>Comments:</p> <p>Overall, documentation to PI is clearly expressed and consistent across individual reviews and panel summaries. The process identifies the strengths and weaknesses of individual proposals, and feedback is generally very constructive. Documentation frequently includes information on how to improve an individual proposal.</p>	<p>YES</p>
<p>7. Is the time to decision appropriate?</p> <p>Note: Time to Decision --NSF Annual Performance Goal: For 70 percent of proposals, inform applicants about funding decisions within six months of proposal receipt or deadline or target date, whichever is later. The date of Division Director concurrence is used in determining the time to decision. Once the Division Director concurs, applicants may be informed that their proposals have been declined or recommended for funding. The NSF-wide goal of 70 percent recognizes that the time to decision is appropriately greater than six months for some programs or some individual proposals.</p> <p>Comments:</p> <p>The NSF Annual Performance Goal of 70 percent for time to decision appears to have been exceeded over the review period. In the lowest period, 2007, NFS informed applicants within six months in 88% of the cases.</p>	<p>YES</p>

8. Additional comments on the quality and effectiveness of the program's use of merit review process:

The panels appear to have been appropriately staffed and more than adequately met time to decision goals. Panelists have clearly presented, for the most part, information on both criteria, and outlined the strengths and weaknesses of proposals. Panel reviews have been thorough and carefully provide the rationale for funding decisions. Panel summaries offer clear overviews of panel recommendations consistent with panelist reviews. Individual reviewer comments seem to provide considerable variability in quantity and specificity; if warranted, the COV recommends giving consideration to providing additional feedback or models of individual panel reviews. Since NFS knows how many declines occur and encourages resubmission, we recommend keeping a tally of the number and percentage of declined proposals that are resubmitted and how many times they have been resubmitted. Additionally, we would like to know the subsequent percentage of awards that occur and recommend using that as an indicator of whether the entire review process is effective in nurturing higher quality projects over time. With such an indicator in place, RDE would be able to analyze whether certain techniques for providing feedback to declined projects are more likely to elicit improved resubmissions.

A.2 Questions concerning the selection of reviewers. Provide comments in the space below the question. Discuss areas of concern in the space provided.

SELECTION OF REVIEWERS	YES , NO, DATA NOT AVAILABLE, or NOT APPLICABLE ²
<p>1. Did the program make use of reviewers having appropriate expertise and/or qualifications?</p> <p>Comments:</p> <p>The program makes good use of reviewers with appropriate qualifications. Specifically, reviewers appear to represent a diverse range of fields of study/expertise in the areas of disability, science, and evaluation. In conducting this COV, the only data that were available included the reviewer’s name, title, place of employment, and contact information.</p>	YES
<p>2. Did the program use reviewers balanced with respect to characteristics such as geography, type of institution, and underrepresented groups?</p> <p>Note: Demographic data is self reported, with only about 25% of reviewers reporting this information.</p> <p>Comments:</p> <p>The program reflects a balanced diversity of reviewers with a good mix of characteristics such as geography, type of institution and underrepresented groups. Although these data remain somewhat incomplete, improvements over the reporting period have occurred. For example, in FY 2006, 50% of reviewers failed to disclose their ethnicity; by FY 2008 nearly 70% reported these data. Yet, 83% did not disclose disability status in FY 2006, and lack of disclosure remained high at 81% in FY 2008. Data represent a good ratio of men to women and good geographic distribution. In order for the review to be more complete, the COV recommends that the program find more innovative ways of encouraging reviewers to disclose these data.</p>	YES
<p>3. Did the program recognize and resolve conflicts of interest when appropriate?</p>	YES

² If “Not Applicable” please explain why in the “Comments” section.

Comments:

The program appears to have identified and resolved conflicts of interest as defined on the current disclosure form. The evidence provided demonstrates that approximately 20% of reviewers disclosed a conflict; that they were removed from the discussions involving the conflict; and no apparent problems occurred as a result of these conflicts. One problem exists with the current COI form; namely, reviewers are not asked to disclose, or to be mindful of potential rivalries or negative relationships. See A.2.4.

4. Additional comments on reviewer selection:

The program has done a masterful job of putting together the templates, resources, and data in logical form. In addition, the annotated template that provides links to the COV members is exceedingly helpful and saves considerable time, making the review more comprehensive and efficient.

We have additional comments specific to the selection of reviewers. What was provided to the COV members consisted of the contact information for the reviewers, along with some summary demographic information. What is not apparent to the COV members is how the selection process works. Exactly how are these reviewers selected? Are characteristics of those selected considered more favorable than those who were not selected? Are there data on the number and characteristics of potential reviewers who were not selected for a panel; or, if they were selected but were unable to participate? Currently, we have information on those who were ultimately selected, but we can not make good judgment on these data without comparison to those who were not selected, or were unable to participate.

Finally, within the bounds of the law, it is important to increase the completeness of these data by finding additional methods for encouraging panel members to disclose these demographics. We suggest providing a statement about the qualification, experience, or expertise of reviewers. Additionally, it would be helpful to have a summary of the process, or steps that the program uses in making decisions about who will serve on the panels. The COV recognizes that the set of reviewers and reviewer characteristics is partly a function of who agrees to serve, secondary to the process of initial invitations, and suggests that future information provided to the COV include the distribution of reviewer characteristics among those initially invited and those who accepted. Along these lines, we would like to see you include age (could be in age-groups rather than specific age). The comparison of demographics for initially invited and for those who accepted would not need to be linked to individual names, but could be presented as grouped statistics.

A.3 Questions concerning the resulting portfolio of awards under review. Provide comments in the space below the question. Discuss areas of concern in the space provided.

<p style="text-align: center;">RESULTING PORTFOLIO OF AWARDS</p>	<p style="text-align: center;">APPROPRIATE, NOT APPROPRIATE³, OR DATA NOT AVAILABLE</p>
<p>1. Overall quality of the research and/or education projects supported by the program.</p> <p>Comments:</p> <p>RDE is poised to leap to the next phase now that it has a permanent program officer. Considerable growth and increase in quality occurred since the last COV reporting period.</p>	<p style="text-align: center;">APPROPRIATE</p>
<p>2. Does the program portfolio promote the integration of research and education?</p> <p>Comments:</p> <p>The portfolio promotes the integration of research and education in several specific ways. On the positive side, the integration of research and education occurs most explicitly through the FRI funding track, whose objectives specify that all research deals with educational issues, e.g., technology use in education, teaching practices, etc. Our review of specific projects funded in each of the years shows that the research topics are educationally salient. Also, the I³ track added in 2008 has the integration of research and education across institutions as one of the explicit targeted goals for proposals. Although the COV did not review any I³ awards in our sample of jackets, future COVs will be able to assess whether that goal is being achieved.</p> <p>What seems to be a missed opportunity to promote integration of research and education is an explicit criterion for at least some of the DEI and RAD awards to base their proposed activities on specified research findings from prior research, ideally from NSF-funded research, especially RDE-FRI. Some projects that reference “evidence-based” activities might do that, but it’s not clear that requirements call for itemization of which evidence from what research. To promote that possibility, consider adding a requirement to the six bulleted goals from the National Research Council’s recommended points for project outcomes: Identify one or more implications for subsequent applied projects in at least one report from the project that links to specific research findings. We are not advocating that researchers base their work</p>	<p style="text-align: center;">APPROPRIATE</p>

³ If “Not Appropriate” please explain why in the “Comments” section.

<p>solely on prior NSF-funded results. For example, if they have already done some NSF-funded work and are applying for an FRI, they may not be able to or wish to tie that project to previously funded work.</p> <p>More generally, it seems possible that the annual meetings of all PIs (the Joint Annual Meetings) could and perhaps do include sharing specific research findings that are framed as implications for future programmatic (i.e., application) projects. We feel there could be better integration of research findings and subsequent proposals that are intervention or implementation type awards, i.e., Alliance and Enrichment track awards.</p>	
<p>3. Are awards appropriate in size and duration for the scope of the projects?</p> <p>Comments:</p> <p>We observed considerable variation within and across funding tracks in the size and duration of specific projects (although especially in 2008 the awards in the Alliance track are much larger and longer than the others). It seems that the variation is appropriate to the variation in scope of project goals, and to the accumulation of both project-based substantive and procedural knowledge and of NSF-RDE staff experience in this funding arena. Having flexibility of project size and duration (including some variation in the ratio of funding to duration) is a good sign that decisions (and presumably, proposals) are sensitive to variation in the challenges and local resources that the individual projects address.</p> <p>A secondary point about the large variation among sizes and durations by track and by year is that it seems inappropriate to present averages along those groupings. Where there is such variation, an average is at worst misleading, and at best, not very informative.</p> <p>It may help to know more about possibly useful indicators of whether size and duration are appropriate. What proportion of grantees have requested extensions; of what length? For what explicit reasons? What about supplemental funds? How many did not accomplish all goals and cited insufficient funds and time among the reasons? The COV recommends that NSF include reported information about supplements and extensions in data for COV Reviews.</p>	<p>APPROPRIATE</p>
<p>4. Does the program portfolio have an appropriate balance of:</p> <ul style="list-style-type: none"> • Innovative/potentially transformative projects? <p>Comments:</p> <p>The judgment sought by this question is difficult to make for many reasons, but we have some notion of what is “appropriate”. A 50-50 balance does not make a portfolio appropriate to the extent that “innovative” equates to “high risk”, and to the extent that innovative projects do not systematically and</p>	<p>APPROPRIATE</p>

<p>incrementally build on prior work to enhance building cumulative field-tested knowledge. Given the size of the program, we assume that only a fairly small minority of projects in any year will be innovative, and conclude that the program does seek and fund at least one innovative project in each. This approach is, appropriately, more evident in the DEI track, with smaller concept-testing projects, than in the Alliance projects, which promote interorganizational activities based on solid foundations with the aim of implementation under varied conditions; FRI projects, appropriately, seem to fall in-between in their balance of innovative/potentially transformative versus building on previously-supported innovations.</p> <p>From scanning some peer reviewer comments, not all agree with the assumption that “innovative/potentially transformative” equates to higher risk and weaker base in well-tested hypotheses. For example, one reviewer referred to the solid background base for a project and also called it “potentially transformative.”</p> <p>The COV wondered if NSF has developed operational criteria for defining a transformative project.</p>	
<p>5. Does the program portfolio have an appropriate balance of:</p> <ul style="list-style-type: none"> • Inter- and Multi- disciplinary projects? <p>Comments:</p> <p>As in the prior item, the judgment of whether the balance is appropriate depends on what defines a proportional division as appropriate. We assume that the great majority if not all of the awards in the program would be inter- or multi-disciplinary, since the mission essentially targets applied research and actual application. It would be unusual to find support for single-discipline research since that is more suitable for basic than applied research purposes.</p> <p>A review of the leaders on funded projects shows that the tracks range from a bare majority to a large majority that are multi- or inter-disciplinary. However, indicators of this balance could be refined, i.e., some mixes of disciplines are less diverse than others. For example, a project that involves experts from “education” and from “human performance and development” seems less interdisciplinary than one that involves experts in “comparative physiology”, “Psychology” and “Computer engineering.”</p> <p>Co-funded projects are another useful way to signify (and to achieve) multidisciplinary approaches; the sample in this review includes examples of co-funded projects from 2 of the 3 years we are covering.</p> <p>The balance seems to lean in the direction of being dominated by multi- and inter-disciplinary projects. We are not necessarily advocating that the preponderance of projects be multidisciplinary. It might be desirable to expand the co-funding approach to meet this objective; however, first there should be a thorough “diagnostic” analysis of what worked well and did not</p>	<p>APPROPRIATE</p>

<p>work in the interdisciplinary approach.</p>	
<p>6. Does the program portfolio have an appropriate balance considering, for example, award size, single and multiple investigator awards, or other characteristics as appropriate for the program?</p> <p>Comments:</p> <p>(Refer to above questions A3.3 and 3.5 for answers to the issues of award size and single versus multiple investigators.)</p> <p>Another characteristic to consider is diversity of research methodologies. The sample projects do vary in methods insofar as they include doing surveys and secondary analyses of national survey databases, and some qualitative interview methods. However, it is not clear from the material reviewed that the issue of overall breadth of methods has been a consideration for the portfolio.</p>	<p>APPROPRIATE</p>
<p>7. Does the program portfolio have an appropriate balance of:</p> <ul style="list-style-type: none"> • Awards to new investigators? <p>NOTE: A new investigator is an investigator who has not been a PI on a previously funded NSF grant.</p> <p>Comments:</p> <p>Assuming that an appropriate balance of new and prior NSF investigators would be that a slim majority have been prior investigators, the pattern found in this sample suggests that the balance is appropriate. On average for the 3-year period, just fewer than 60% have been prior awardees. It is encouraging to find that balance has been fairly stable, suggesting that active outreach and/or word-of-mouth in the field is continually bringing in a new cohort, and that prior investigators are coming back. The slight decline in new investigators in the most recent year might indicate a trend or might just be ordinary variation. The decline bears watching but would not seem problematic unless it tipped a great deal. A reason to expect some decline in the proportion of new investigators is that the growth of large, more appropriately ambitious awards in the Alliance program would naturally favor more experienced investigators.</p> <p>Two questions for further in-depth evaluation of this issue:</p> <ol style="list-style-type: none"> 1. As was raised by the last COV, we suggest making a distinction according to whether investigators are new to any federal funding, versus experienced with other agencies but not NSF, and NSF-experienced. 	<p>APPROPRIATE</p>

<p>2. The data used in this review were based on PIs, not including all investigators on the projects, which would also be an important angle.</p>	
<p>8. Does the program portfolio have an appropriate balance of:</p> <ul style="list-style-type: none"> • Geographical distribution of Principal Investigators? <p>Comments:</p> <p>The relatively small sample limits the diversity across states. In fact, the sample is almost maximally dispersed. Interestingly, the locations mainly fall in the nation's perimeter states, except for the north central region, and not surprisingly, mostly in the more populous states. The possible concern is whether rural regions are adequately covered, since the issues of participation in STEM might be distinctive and more severe in rural areas. This coverage is difficult to assess with the readily available information, since it would require a close reading of all the proposals and their actual target communities according to the rural-urban characteristic. The rural areas may need more attention than would match their percentage of the nation's population.</p> <p>Overall, there seems to be high geographic dispersion across states, with a potential concern about adequate rural coverage.</p>	<p>APPROPRIATE</p>
<p>9. Does the program portfolio have an appropriate balance of:</p> <ul style="list-style-type: none"> • Institutional types? <p>Comments:</p> <p>Not surprisingly, the balance of the portfolio viewed according to institutional types is heavily tilted toward research universities; after all that is why they are called research universities. Given the dominance of that category, it is helpful that the staff report distinguished for us between « very high » and « high » research activity, a useful way to get a better sense of diversity and a feature that we would not have been able to assess on the spot. Given the expected tilt, it is good to see that there also is participation by institutions that are not primarily research-oriented. Participation also includes the community college level of institutions where a majority of students with disabilities pursue higher education, as well as other types of private institutions (but it is not clear that they include some institutions that deliver social services, rehabilitation and/or advocacy). It would probably require intensive outreach and considerable capacity-building efforts to accomplish greater participation of community-college and service-delivery organizations, with specific attention to Centers for Independent Living. We also encourage the development of new partnerships with institutions that are sensitive to the needs of students with disabilities.</p>	<p>APPROPRIATE</p>

<p>For future evaluation, it might be useful to develop indicators of institutional attention to disability access that could be applied especially to distinguishing among the research universities.</p>	
<p>10. Does the program portfolio have an appropriate balance:</p> <ul style="list-style-type: none"> • Across disciplines and sub disciplines of the activity? <p>Comments:</p> <p>As noted in A.3.5, there is a high level of inter- and multi-disciplinary participation in the portfolio at the grants level, but that doesn't directly address the adequacy of the specific disciplines and sub-disciplines that are represented. For that point, working only with the disciplines that show up in the sample jackets is not a fair basis for judging; the diversity no doubt greatly expands when taking all awards into consideration. The sample does, however, suggest underrepresentation in social sciences. It is possible also that RDE needs a more diverse array in terms of the STEM disciplines, but this would have to be checked against external data that show the distribution of STEM disciplines in terms of educational programs as well as the workforce. We recommend that you clarify what disciplines in STEM are included via developing a method of summarizing which disciplines each proposal is targeting.</p>	<p>APPROPRIATE</p>
<p>11. Does the program portfolio have appropriate participation of underrepresented groups?</p> <p>Comments:</p> <p>RDE had representation of women as PI or CO-PI on an average of 65% of proposals during FY 2006—2008. This average is good, and the trend is also very encouraging. In FY 2006, 43% of proposals had women serving as PI or CO-PI; this proportion increased to 46% in FY 2007, and in FY 2008, 100% of proposals had involvement of women in the leadership role.</p> <p>Over this reporting period, RDE had an average of 19% of PI and CO-PI who were from under-represented populations. This proportion was highest in FY 2006 at 29%, dropped to a low of 15% in FY 2007, and leveled off at 18% in FY 2008. It is difficult to determine whether this proportion is good or bad, as data are not available as to the potential distribution in the field. It is of some concern that the ratio was highest in FY 2006 and only recovered moderately by FY 2008. While these data are not alarming, we suggest monitoring this ratio for future years.</p> <p>Additionally, RDE may wish to capture data related to the representation of</p>	<p>APPROPRIATE</p>

<p>individuals with disabilities in the review process. As this program's focus relates to projects that serve individuals with disabilities, it seems important that PI, CO-PI, and reviewers be representative of that population. We reviewed no data that addressed the representation of these individuals. The COV suggests adding a separate underrepresented category for disability.</p>	
<p>12. Is the program relevant to national priorities, agency mission, relevant fields and other constituent needs? Include citations of relevant external reports.</p> <p>Comments:</p> <p>The RDE program “supports efforts to increase the participation and achievement of persons with disabilities in science, technology, engineering, and mathematics (STEM) education and careers” (RDE FY2006 Solicitation, p. 2). This focus is directly relevant to the National Science Board’s priority of increasing the participation of people from groups that historically have been underrepresented in the STEM workforce: “To meet continuing, strong demand, it will be important that every American has an opportunity to achieve in mathematics and science. Women, minorities and persons with disabilities remain underrepresented in STEM professions while they are an increasing percentage of the overall U.S. workforce.” (NSF, <i>Investing in America’s Future</i>, p. 2).</p> <p>The program is also relevant to The Committee on Equal Opportunities in Science and Engineering (CEOSE), who “advises the National Science Foundation (NSF) on policies and programs to encourage full participation by women, minorities, and persons with disabilities within all levels of America’s ...STEM enterprise.” (2006-2006 Mission Statement).</p> <p>The overall goals of the program are directly relevant to the goals stated by The Interagency Committee on Disability Research (2005-2006 Report to Congress). However, in this case we see less evidence of the program’s direct linkage to employers as there is to the type of education and training needed for access to career.</p>	<p>APPROPRIATE</p>
<p>13. Additional comments on the quality of the projects or the balance of the portfolio:</p> <p>It would be desirable to have some ongoing funding that targets assessing and improving the methodologies available for this research arena; most appropriate to look at methods from the</p>	

perspective of challenges and solutions for using certain techniques in relation to disability access. A good reference for clarifying methodology is: Kroll, T. et al, 2007: Towards Best Practices for Surveying People With Disabilities, Hauppauge, NY: Nova Publishers.

A.4 Management of the program under review. Please comment on:

1. Management of the program.

Comments:

The management of RDE is excellent. The committee was pleased to see that RDE now has a permanent Program Officer. As previous COVs have noted, past program directors with two year IPA appointments have done an admirable job, but a full-time program director is able to provide valuable long-term strategic planning and continuity. The RDE support staff, while excellent, still seems to have considerable turnover and shares responsibilities with other programs. The COV recommends funding and assignment of additional dedicated staff to RDE.

2. Responsiveness of the program to emerging research and education opportunities.

Comments:

RDE appears to be keenly responsive to emerging research and education opportunities. The focus of FRI projects reflects expansion to include such things as disability related differences in secondary and post-secondary STEM learning and effective practices for transitioning students with disabilities across critical academic junctures. Demonstration projects will now be pilot investigations designed to offer “proof-of-concept” data for future RDE Research studies. Use of Demonstration projects may result in discoveries that contribute to the RDE knowledge base and serve to provide data for future competitive RDE Research projects. The Enrichment projects will now be test beds for establishing Alliances for Students with Disabilities in STEM and piloting the implementation of promising practices to advance students with disabilities completing associate, baccalaureate, and graduate degrees in all STEM disciplines, and to increase the quality and number of students with disabilities entering our nation’s STEM workforce or graduate STEM degree programs. The clear articulation of these interrelationships and opportunities between the various RDE tracks has great potential to keep the program in the forefront of emerging research and education opportunities.

3. Program planning and prioritization process (internal and external) that guided the development of the portfolio.

Comments:

Program planning and prioritization has clearly become more robust in recent years, perhaps due to

the installation of a permanent Program Officer. Some proposed changes are more operational in nature. For example, the PO is making improvements to future solicitations that refine and clarify track expectations. We noted that the duration of the DEI awards will increase, and the amount of the awards for both the DEI and FRI awards will increase, perhaps resulting in a decrease of project extensions. Other projects are more holistic in nature, clearly illustrating and expanding upon the interactive nature between the various RDE tracks.

4. Responsiveness of program to previous COV comments and recommendations.

Comments:

RDE has been extremely responsive to previous COV comments. The 2006 COV stressed the importance of a RDE program evaluation and a project data management system. Both of these suggestions have been acted upon. Plans were initiated in FY 2008 to engage a contractor who will design, develop and implement a web-based project data management system. In FY07, staff from SRI International, via a contract with EHR, created a logic model for a RDE program evaluation, a menu of evaluation options, a chart aligning program outcomes with an initial set of metrics, and a chart coding active RDE grants with an initial set of substantive and technical descriptors. In FY08, accomplishments included conducting a pilot program evaluation of the Regional Alliance track with preliminary results, and plans for conducting a full evaluation in FY09. In addition RDE has instructed PIs to include metrics of individual student success at a number of significant transition points. These data, in combination with the project data management system will provide a robust tracking system. The COV applauds RDE for the substantive work that has been done to develop this process and further commends the leadership and staff of RDE in its responsiveness to the previous COV.

5. Additional comments on program management:

The RDE program management is exemplary, particularly given the fact that it only recently has had a permanent Program Officer and still has limited and changing support staff. The project data management system and the increased metrics provided by individual PIs will provide excellent data for assessment and evaluation. The outside evaluation system appears to be working well and we are waiting to see the results. It will be very exciting when the external evaluation can be applied to the entire program. The committee remains concerned, however, about the limited and changing nature of the support staff. Although our dwell time tables show that RDE is meeting the NSF standards, the most recent FY08 ADR, indicated that of the twenty-four proposals processed in FY 2008, 96% of the proposals were processed in less than six months. Of the 35 proposals processed in FY2009, 97% of the proposals were processed in more than six months. It appears to us that this program has been in more of a maintenance mode for sometime but now has exciting new leadership. Without adequate support, creating new strategic initiatives in addition to maintaining the day-to-day operations will be extremely difficult. The COV suggests funding additional support staff positions.

PART B. RESULTS OF NSF INVESTMENTS

The NSF mission is to:

- promote the progress of science;
- advance national health, prosperity, and welfare; and
- secure the national defense.

To fulfill this mission, NSF has identified four strategic outcome goals: Discovery, Learning, Research Infrastructure, and Stewardship. The COV should look carefully at and comment on (1) noteworthy achievements based on NSF awards; (2) ways in which funded projects have collectively affected progress toward NSF's mission and strategic outcome goals; and (3) expectations for future performance based on the current set of awards.

NSF investments produce results that appear over time. Consequently, the COV review may include consideration of significant impacts and advances that have developed since the previous COV review and are demonstrably linked to NSF investments, regardless of when the investments were made.

To assist the COV, NSF staff will provide award "highlights" as well as information about the program and its award portfolio as it relates to the three outcome goals of Discovery, Learning, and Research Infrastructure. The COV is not asked to review accomplishments under Stewardship, as that goal is represented by several annual performance goals and measures that are monitored by internal working groups that report to NSF senior management.

B. Please provide comments on the activity as it relates to NSF's Strategic Outcome Goals. Provide examples of outcomes ("highlights") as appropriate. Examples should reference the NSF award number, the Principal Investigator(s) names, and their institutions.

B.1 OUTCOME GOAL for Discovery: "*Foster research that will advance the frontier of knowledge, emphasizing areas of greatest opportunity and potential benefit and establishing the nation as a global leader in fundamental and transformational science and engineering.*"

Comments:

The program has done an increasingly effective job of selecting applicants who demonstrate projects with intellectual merit and have the likelihood for broader impact.

Additionally, projects selected for award have solid research design and follow established standards for evaluation of results. In each case, plans were provided for a research protocol. In evidence are examples, such as, "... are being studied with two (2) experimental groups of students with learning disabilities, two (2) control groups of students with learning disabilities, and two (2) comparison groups of students without learning disabilities." And "...The study will feature a three-independent group, randomized block, repeated measures design utilizing multiple-agents, multiple methods, and established protocols and measurement methods."

We also found projects identified as having broad impact, and/or having high likelihood of transforming the field of STEM integration and access. For example, Speech to text as a

replacement, or supplement to real sign language interpreters has good merit and broad impact. Currently, it is difficult to find sufficient numbers of qualified interpreters, and this can be quite expensive. Creating a computer-based system that works in real time will have a broad impact across this field, and is an efficient and cost effective alternative to traditional accommodations.

Projects are innovative and integrative. In examples we reviewed projects reflect development of entirely new technology (fostering innovation), off-the-shelf mainstream products undergoing modification to assist individuals with disabilities (increasing likelihood for global access), and use of multi-sensory and universal design principles (fundamental as well as transformative). In addition, the COV found evidence that applicants were working collaboratively, utilizing previous NSF projects as a foundation, and integrating theory, research, and practice in meaningful ways.

The range and diversity of projects that have been funded in this cycle demonstrate diversity and multidisciplinary approaches. Specifically, projects focused on elementary students throughout middle and high school, as well as college and individuals entering into the workforce. Projects gave attention to specific disabilities, and even different aspects of the same disability. Finally, data reflect that demonstrated projects yielded meaningful results that allow integration of those results into future project designs, and that the findings have been effectively disseminated.

B.2 OUTCOME GOAL for Learning: “*Cultivate a world-class, broadly inclusive science and engineering workforce, and expand the scientific literacy of all citizens.*”

Comments:

The mission of RDE focuses on increasing the accessibility of science careers by individuals with disabilities, and with supporting NSF’s mission to develop a diverse workforce of competitive scientists and engineers. Significant evidence shows that progress is being made toward this objective such as: the creation of four regional alliances across 14 states to increase access to STEM education by individuals with disabilities. Over 6,000 students with disabilities (and 9,000 students without disabilities) have been served through these programs. Opportunities have also included job-shadowing experiences and support for teachers and faculty.

The variety of funded proposals provides evidence for the multi-faceted approaches needed to increase access to science careers. For example, the TERC project (HRD 0833969) to produce and evaluate an illustrated interactive 3D dictionary of mathematics terms for students who are deaf or hard of hearing shows promise that will increase access to mathematics with further implications for later grades. The intent of the Portland State Project (HRD 0834185) is to increase access to science careers by pairing mentors with disabilities to provide support and resources to students with disabilities.

Other projects lean toward improving instruction of students with disabilities to increase their access to STEM fields. The Landmark College Project (HRD 0726252) intends to improve the quality of postsecondary algebra for students with learning disabilities by giving faculty new approaches and tools to support STEM instruction. Georgia Institute of Technology (HRD 0622885) proposed to develop web-based courses for high school educators to instruct them in the creation of STEM coursework for students with disabilities. WGBH Educational Foundation (HRD 0622857) developed means to improve accessibility to multimedia digital science libraries for students with visual impairments, providing meaningful descriptions within digital talking books.

Overall, these projects address the significant variety of means facilitative of increasing access to STEM education for students with disabilities. Although promoting access and increasing diversity of the science and engineering workforce is very consistent with NSF goals, the COV suggests placing additional attention on expanding scientific literacy of those who may or may not enter careers in science and engineering. Although an expanded workforce is certainly necessary, it is also important to encourage and develop a scientifically literate citizenry – with and without disabilities -- who are knowledgeable of, and supportive of, science and its role in society. Perhaps RDE will consider placing further attention on this additionally important outcome.

B.3 OUTCOME GOAL for Research Infrastructure: “*Build the nation’s research capability through critical investments in advanced instrumentation, facilities, cyberinfrastructure and experimental tools.*”

Comments:

The program has provided evidence that advanced instrumentation, facilities, and experimental tools have been created for persons with disabilities. In one specific example, researchers used leading-edge technology with Avatar three-dimensional animation to develop a program for real-time sign language interpretation. Accessing human interpreters can be challenging, expensive, and difficult to arrange. It appears that Avatar technology has been effectively used to provide a solution to a major impediment to STEM access for individuals with deafness.

Through an integrative use of NSF-funded research, the Avatar sign language virtual interpreter addresses additional challenges in the education of children who are deaf. While ASL is a comprehensive language, lack of signs for advanced math concepts generates limited access to STEM programs for youth with hearing disabilities. Use of Avatar and cyberspace technology to create a dictionary for developing appropriate ASL signs for math concepts, and to convey these concepts to individuals in an efficient manner is an example of successful technological innovation.

Many barriers exist for individuals with visual impairments to access STEM courses and careers. Among these barriers are efficient access to printed materials, and physical access to existing laboratory equipment. In several projects the COV reviewed, we found evidence of entirely new technology designed to provide near real-time translation of text into speech; technology for providing access to chemistry equipment; and access to microscopes for students with visual and mobility impairments.

These technologies advance the infrastructure and access in several meaningful ways. Each project reviewed described instruments that can be disseminated broadly, and appear to be appropriate for the disability identified. Data presentation shows that the technologies have been pilot tested with the target audience and are found to be usable. Finally, evidence indicates that new projects are building upon the findings and outcomes from previous NSF-funded initiatives.

One aspect stood out in this review. Of the information provided, the projects focused on individuals with hearing and visual impairments, with the exception of one that included students with mobility impairments. After receiving additional information, the COV determined that these projects were appropriately representative of the actual applications that were received by RDE during this reporting period. The lack of samples of technologies under development for individuals with other types of disabilities occurs because applications of this type were not received, or were not funded in these areas.

PART C. OTHER TOPICS

C.1. Please comment on any program areas in need of improvement or gaps (if any) within program areas.

The COV recommends that RDE incorporate grants that are methodological in nature (i.e., are intended to fund the development of new methods of research/surveying that are accessible/universal in their design). We also suggest that RDE Expand the Geographic Distribution of Principal Investigators of awarded projects, increase Participation Among various types of institutions, and Among Underrepresented Groups. Finally, the COV commends RDE's efforts, and encourages their continued leadership through responding to emerging technical, economic, and political opportunities; and to anticipate changing national educational needs for the future.

- a) Grants with a priority aim of improving accessibility of techniques used in all phases of different types of research, e.g., focus groups, interview and self-administered surveys, etc., allow fuller participation both by researchers and by research participants. For example, more accessible methods are needed for blind and visually impaired researchers to prepare and present quantitative research results. This area could build on results from the NSF-funded project on improving access to non-text scientific teaching and journal materials, but now would focus on researchers' preparation of their own findings. We recommend targeting analogous needs for presentation of data reports by deaf and hearing-impaired researchers, and for their collaborative team work at other stages of research.
- b) Other methodological research needs that include creating and testing innovative ways to design samples that adequately represent specific impairment categories, given their low prevalence and geographic dispersion.

By contrast, other issues of sample design apply to impairment/disability populations who reside in various types of group homes, including new residential forms catering to elderly persons or to younger persons with cognitive impairments. The statistical issue is the clustering of that segment of the population with disabilities. Note: The latter groups, i.e., elderly persons who may not be occupationally oriented, and groups with some cognitive impairment, are of prime relevance for the part of NSF's mission that specifies improving science literacy of the general population.

- c) Seek mechanisms of various sorts for greater involvement of social scientists (sociologists, anthropologists, economists, political scientists, with and without disabilities, and with some track record of research on disability issues). Those experts, working in interdisciplinary teams would assist RDE and other HRD areas in detecting and leveraging emerging technical, economic, and political opportunities for innovative research and for implementation of evidence-based new practices. Specifically, we recommend among more general environmental scans, that those teams periodically focus on anticipating changing national education needs.

C.2. Please provide comments as appropriate on the program’s performance in meeting program-specific goals and objectives that are not covered by the above questions.

The COV concludes that RDE has gone beyond the call of duty to meet and exceed program goals. We base this conclusion on evidence in the materials we reviewed: that panelists for the most part were carefully chosen for their expertise and diversity in terms both of intellectual field and demographic backgrounds; and, that the resulting funded portfolio is of high caliber with appropriate balance of innovation and of expanded implementation projects based on prior research.

In certain respects, where gains were made over the past review period, the COV urges further improvements in the same direction they have been headed: specifically, that applies to improving linkage across RDE funding tracks by various means of actually or virtually bringing project leaders together and sharing materials generated by their projects.

Also, we applaud past achievement and urge further effort toward increasing diverse stakeholder representation, especially in terms of lived experience with different types of impairments. That type of increased diversity also applies to future COV reviewers and to PIs and other leadership-level staff on funded projects.

The COV urges continuation of the positive trend regarding RDE’s feedback to project proposers about their reviews, and about interim issues of project implementation.

A specific suggestion to facilitate further gains in Panelists’ written reviews is for RDE to select a few prior reviews (masking identity of the reviewer and the proposer(s)) to illustrate what RDE considers to be model write-ups, and providing those examples as part of orientation for first-time (and perhaps also for returning) reviewers. By providing 2 or 3 such “model” reviews, RDE can demonstrate that excellent review write-ups need not be in only one style, at the same time showing what it considers a proper tone for critiques, proper levels of detail in providing examples, and overall length.

C.3. Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance.

The COV recommends that NSF give RDE responsibility to serve as intra-agency contact point for all disability-related projects.

In reviewing the current disclosure of conflicts form, there appears to be one type of conflict that is missing. Currently, the form addresses:

- Affiliations with an applicant institution
- Relationship with an investigator, project director, or other person who has a personal interest in the proposal or other application.
- Other affiliations or relationships

In each of these categories, the relationship is presumed to be of a positive/beneficial nature, leading us to believe that the form needs revision to include conflicts that arise from rivalry, competition, or spite. Most reviewers work in the same fields of study as the applicants for awards (as is appropriate), but this fact will inevitably result in cross-institution rivalries, and/or reviewers

who may feel a personal dislike or grudge against an applicant. We suggest taking steps to address this deficiency through disclosure by providing language that makes it clear that panelists are honor bound and will need to set aside their feelings or recuse themselves from participating. Having this data available would improve the process. Conflicts like these are equally important and can just as easily lead to inappropriate reviews of applications if not addressed. The COV recommends that you consider the multiple (positive and negative) sources of bias in reviews and provide language to define this deficiency.

C.4. Please provide comments on any other issues the COV feels are relevant.

We were a little unclear on item A.3.1, “Overall quality of the research and/or education projects supported by the program.” Obviously this is a critically important component of the process, but a complete and objective response to this item would require an independent program evaluation. Perhaps some guidelines (e.g., how were proposals rated; did funded proposals appear to be of higher quality than those not funded; did the number of funded proposals appear adequate) may be of assistance to future COVs in making this determination.

Additionally, it would be helpful to have more, or more specific, information on how monitoring of the projects occurs.

Finally, this program seemed to the committee to be extremely valuable. We would be interested in knowing about efforts to increase visibility of the program, as well as efforts to develop partnerships with other related programs, in order to expand impact and increase awareness of this important effort to promote inclusiveness in science.

C.5. NSF would appreciate your comments on how to improve the COV review process, format and report template.

Recommendations:

1. Provide more comprehensive instructions in advance of the COV meeting so that panelists have an idea of the meeting process. By including the writer and presenting the tentative agenda in the webinar session, the panel would learn how the evaluation process works and get a clearer picture on what to expect during the actual meeting dates. The RDE panel consisted of only three members who were present throughout the two days, and the Chair, who had dual duties in co-chairing and participating in a simultaneously run COV in another meeting room. This arrangement did not allow the Chair to fully participate in the RDE group discussions and bond fully with the team dynamics. It also put a greater burden on the team to answer every evaluation question in a relatively short timeframe, especially since they knew they would be presenting a preliminary report to NSF on Day 2, and the meeting time for that presentation kept changing.
2. Add more members to the COV panel. A total of 5 or 6 participants would allow better distribution of the workload and would permit a primary and a secondary review of each question before the group discussion of findings takes place on Day 2.
3. We are not sure that a joint COV meeting is the best way to evaluate NSF Programs if the same chair participates as a panelist on both teams. If it is necessary to combine two COVs due to time constraints, it would be beneficial to have a chair that is a subject matter specialist in both programs.

SIGNATURE BLOCK:

For the Research in Disabilities Education (RDE) Program
Dr. Cinda Sue Davis
Chair