

# **AED Survey Report**

**September 2009**

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## Executive summary

Since its launch in June 2006, Asynchronous Electronic Discussion (AED) has been used in over 600 study section meetings convened by the Center for Scientific Review (CSR). Over 9,000 grant applications have been reviewed in these meetings. AED was introduced at CSR as a viable new method to enhance scientific peer-review at NIH. AED is novel in that it permits asynchronous discussion and private scoring of grant applications without the need for a face-to-face meeting or teleconference. CSR launched online satisfaction surveys to gather stakeholder opinions about this peer review format. It is clear from the survey data that AED increases scheduling flexibility, one of the intended benefits. Seventy percent of SROs reported that not having to request travel facilitated reviewer recruitment. Many reviewers reported that being able to participate in the discussion at the time of their choosing and for as long as they wished was a benefit. The majority of reviewers indicated that not having to travel for a review meeting was an advantage. Several respondents also commented that AED-style study section attracted better reviewers. However, while appreciating the convenience of AED, many reviewers regretted a missed opportunity to network with other scientists.

Respondents were split on whether the AED resulted in more thorough and thoughtful review. Many reviewers said that AED provided an opportunity to consult the literature, to reflect on the proposals and on the views of others, and to develop more considered and constructive summaries. They also noted that the discussion stayed focused on important points and that chances of reaching a consensus opinion were greater when the review was conducted on line. Finally, it is reasonable to expect that not having to compensate reviewers for travel and lodging reduces peer review related costs for NIH.

## Background

Asynchronous Electronic Discussion (AED) is a “threaded message board with features tailored to NIH review,” which allows reviewers to participate in asynchronous discussion and private scoring of grant applications without the need for a face-to-face meeting or teleconference.<sup>1</sup> AED was developed with expectations it would result in several important benefits to the process of peer review:

- Increasing scheduling flexibility of peer-review meetings
- Expanding of reviewer base, to include reviewers who do not wish to travel
- Minimizing the influence of forceful personalities on the discussion
- Facilitating more thorough and thoughtful review
- Simplifying the management of conflicts during the meeting
- Reducing costs

Since its launch in June 2006, over 600 study sections (convened by the CSR and the NIH Institutes and Centers) have used this format to review over 9,000 grant applications. AED software has been updated periodically based on feedback from reviewers, project officers, and scientific

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<sup>1</sup> <http://cms.csr.nih.gov/AboutCSR/CSRInitiativesNew/RecruitingtheBestReviewers/AEDReview.htm>

review officers (SROs) solicited by CSR. The latest version of AED (4.0) includes modifications to comply with the changes involved in Enhancing Peer Review and incorporate many of the suggestions from the users.

As more and more NIH staffers and reviewers have experienced peer review using AED, some clear benefits have emerged. In traditional face-to-face meetings the discussion lasts generally between 10 – 20 minutes. For AED, the discussion board is open for 1.5 days, allowing for a more in depth discussion of the applications as reviewers have time to reflect on the comments from other reviewers. Further, in AED meetings, each application generally receives 10 to 12 posts, suggesting fairly rigorous reviewer participation. Finally, it has emerged from participant feedback that an AED format facilitates the process of combining several small groupings of applications into a single AED session. Traditionally, each small group of applications would be reviewed by teleconference. AED eliminates the inefficiencies of multiple teleconferences by combining these small groups of applications into one meeting.

## Evaluation

After an initial wave of AED reviews in 2006-2007, CSR solicited feedback from the participants on their experience using the technology and several technological and procedural modifications were made based on this input. These included changes to the web site appearance, navigation style, communication capabilities, and type of information being displayed.

To evaluate the efficacy of the AED review process following these changes, CSR conducted a second round of on-line surveys of reviewers, program officers, and scientific review officers (SRO), participating in the AED reviews in 2008. Despite multiple reminders, participation of program officers in the survey was low. To avoid generalizing minority views to the population of the entire project officers, feedback from this group was not included in the report. The surveys examined reviewer and SRO satisfaction with AED technology and process, rigor of the discussion and its utility in scoring the applications, burden on the participants, and fairness of outcomes to the applicants. This report summarizes survey findings.

## Methodology

Six hundred and thirty four reviewers and 44 Scientific Review Officers (SROs) who participated in the AED reviews conducted in May and October 2008 responded to the survey, resulting in participation rates of 64% and 71%, respectively. Satisfaction survey protocols contained a combination of multiple-choice and open-ended questions and were composed of three modules: use of AED; discussion process and decision making; and satisfaction with AED. Below, we report the feedback across groups for these topics.

## Findings

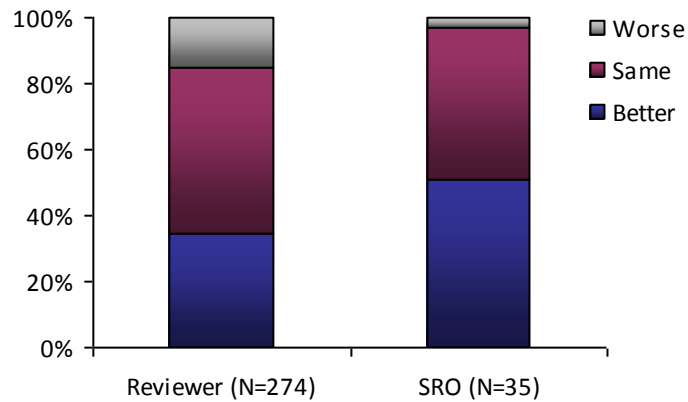
### Use of AED

**Familiarity with AED.** Many respondents were not new to the AED experience: 40% of reviewers and 67% of SROs indicated having used the AED format in the past. When asked to contrast their

latest AED experience with previous AED experiences, the majority reported either no change or an improvement (Figure 1).

**Figure 1: Comparing Past and Present Experiences Using AED**

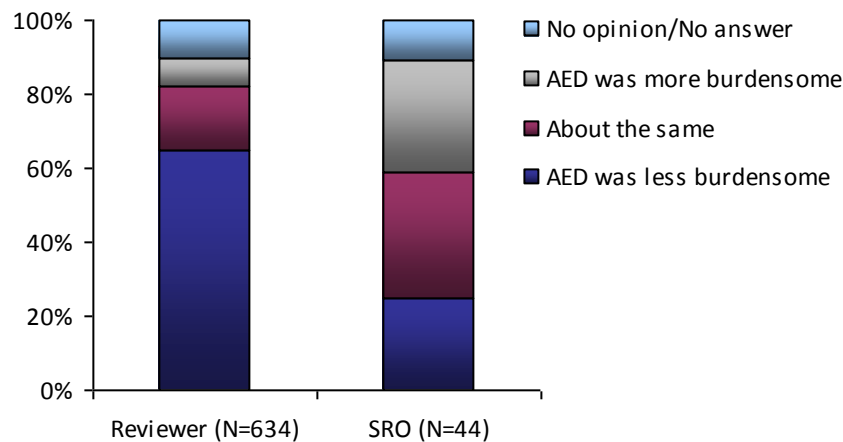
If you had participated in the AED, was this experience better, the same, or worse than your previous experience?



**Review burden.** The majority of reviewers and SROs indicated AED was either less burdensome or about the same as a face-to-face meeting (82% and 59%, Figure 2). SROs spent an average of 8.5 hours monitoring AED. This level of involvement was more burdensome than traditional study sections for 30% of SROs who responded to the survey (Figure 2).

**Figure 2: Burden of Using AED**

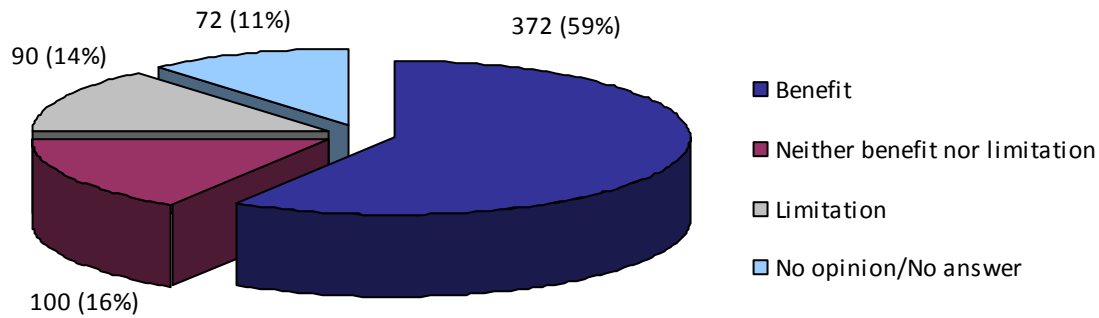
How would you compare the overall burden of participation in the AED meeting to a face-to-face meeting?



Nearly 60% of the reviewers considered not travelling to the review meeting a benefit of using AED; 14% considered it a limitation (Figure 3). Similarly, 70% of SROs indicated that not having to request travel facilitated reviewer recruitment.

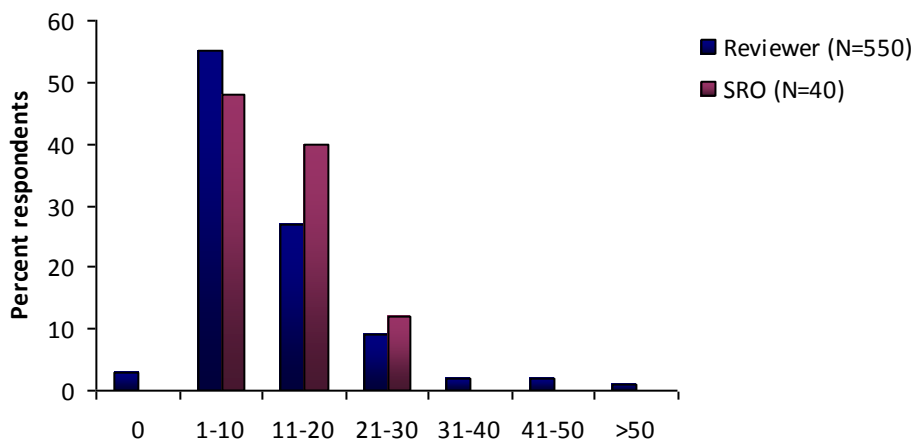
**Figure 3: Importance of Travel to Reviewers**

Do you consider not traveling to a review meeting a benefit or a disadvantage of using the AED format?



Respondents were asked how many applications should be reviewed during a single AED session. Several reviewers (19) chose “0” as an answer, presumably as an attempt to indicate their negative opinion about the AED process in general (Figure 4). That aside, all groups appeared to prefer 1-10 applications per meeting, with 11-20 emerging second (Figure 4). As discussed below, limiting the number of applications per AED was advocated by many reviewers in an open-ended format as well.

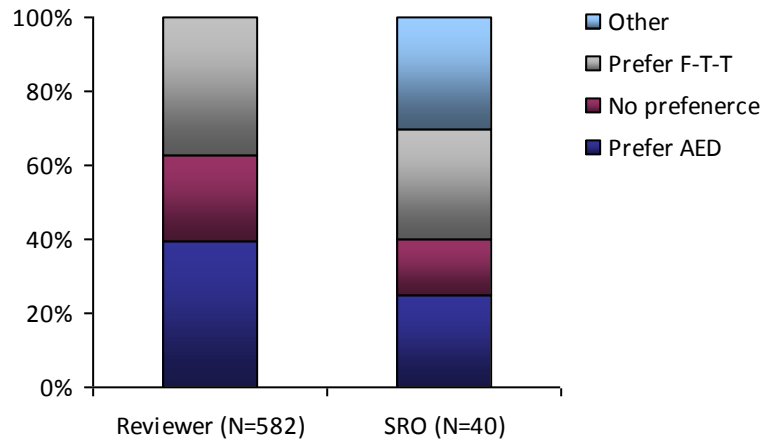
**Figure 4: Preferred Number of Applications to Consider During an AED session**  
How many applications should be reviewed per meeting?



**Choosing AED.** While reviewers and SROs as a group were relatively content with the AED process, many indicated a preference for a face-to-face meeting (Figure 5), given the choice. As Figure 5 illustrates, 39% of reviewers and 25% of SROs would prefer AED. A sizable number of respondents expressed no preference (23% of reviewers and 15% of SROs, Figure 5). Most SROs who selected the “other” answer option, indicated that their preference depended on the number of applications.

**Figure 5: Preference for AED Over Face-to-Face Format**

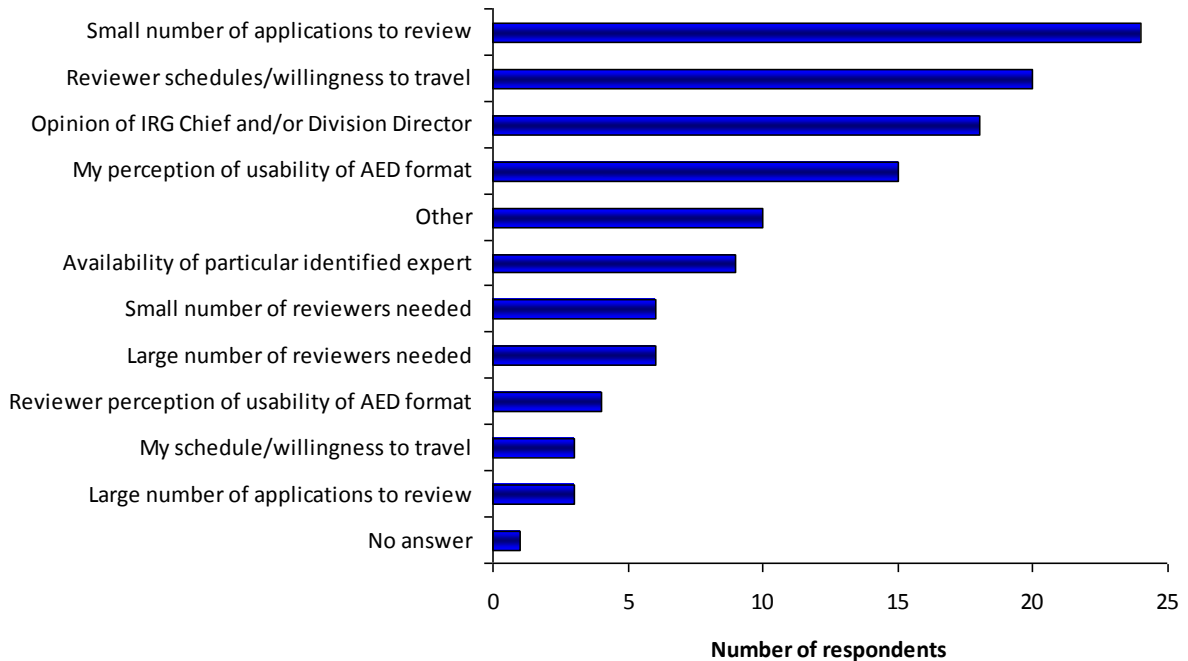
If you had a choice for your next review, would you prefer an AED meeting, at a face-to-face meeting, or have no preference?



The reasons for selecting an AED format for a study section reported by SROs varied (Figure 6). As the total number of answers to this question equaled 119, almost three times the number of respondents in the SRO sample (N=44), most SROs chose AED for several reasons. The most common reason was having a small number of applications to consider, followed by reviewer schedules and willingness to travel. The third most common reason indicated by SROs was being guided by the opinion of the IRG Director or the Division Director.

**Figure 6: Reasons for SROs to Choose AED**

Which of the following factors influenced your choice of the AED review format? Select all that apply.



SROs encountered few challenges with the AED format (Table 1). The main difficulty, reported by about a third of respondents, was in using the discussion threads from the study section to develop summary statements. This was followed by monitoring of reviewer participation (8 respondents or 18%), and reviews of scoring (7 respondents or 16%). SROs experienced no challenges in getting approval for the AED format and in having a URL created for the meeting.

**Table 1: Ease of Arranging and Using AED by SROs**

How easy or difficult did you find the following activities?

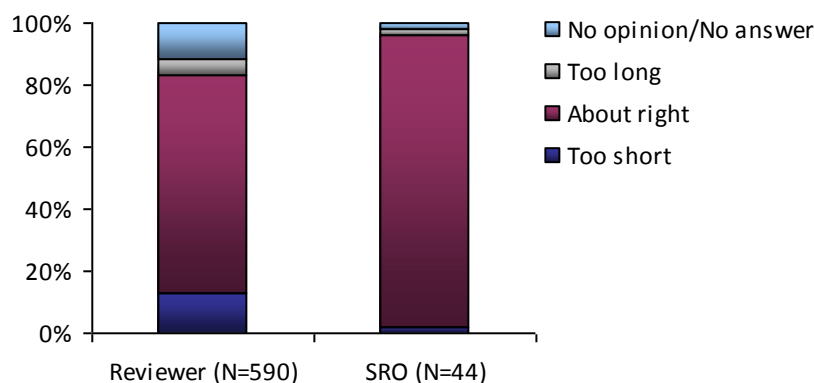
	Easy, N (%)	Neutral, N (%)	Difficult, N (%)
Synthesizing discussions for summary statement	14 (32)	15 (34)	14 (32)
Monitoring reviewer participation	20 (45)	16 (36)	8 (18)
Review of private scoring and final scoring	24 (55)	11 (25)	7 (16)
Setting up/changing conflict of interest information	21 (48)	16 (36)	6 (14)
Monitoring discussions	26 (59)	11 (25)	6 (14)
Setting up or changing the application panel	32 (73)	8 (18)	3 (7)
Unscoring applications	19 (43)	18 (41)	3 (7)
Setting up or changing times of the meeting phases	36 (82)	6 (14)	2 (5)
Setting up or changing the reviewer panel	34 (77)	8 (18)	1 (2)
Conducting the opening of the meeting	35 (80)	8 (18)	1 (2)
Process to get approval for AED meeting	40 (91)	4 (9)	0
Getting URL created	40 (91)	4 (9)	0

## Discussion and Decision-Making

**Rigor.** Several questions in the survey explored participant satisfaction with the duration and rigor of the discussion. The majority of respondents emerged as satisfied with both: 71% of reviewers and 93% of SROs characterized the duration as “about right” (Figure 8). Further, 72% of reviewers and 91% of SROs said that the discussion was “rigorous” or “somewhat rigorous” (Figure 9).

**Figure 8: Discussion Duration**

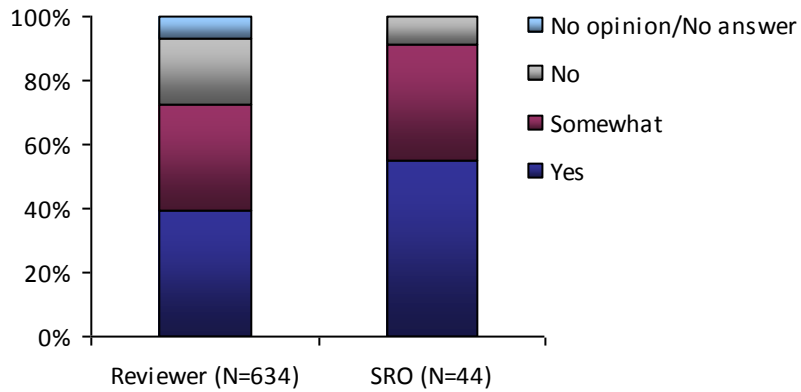
Was the duration of the discussion phase sufficient to allow meaningful consideration of the applications?



**Figure 9: Discussion Rigor**

Would you characterize the AED discussion as sufficiently rigorous?

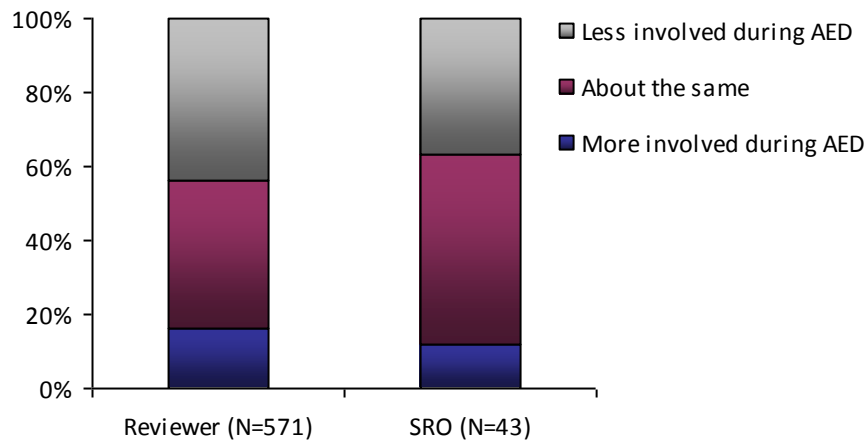




The survey also examined the level of reviewer participation in the AED format compared to a traditional, face-to-face study section. Most respondents appeared to be satisfied: 56% of reviewers and 63% of SROs reported that reviewers were as involved or more involved in the AED discussion than in a face-to-face discussion of applications (Figure 10). Similar data emerged for the level of involvement of review chairs.

**Figure 10: Reviewer Participation**

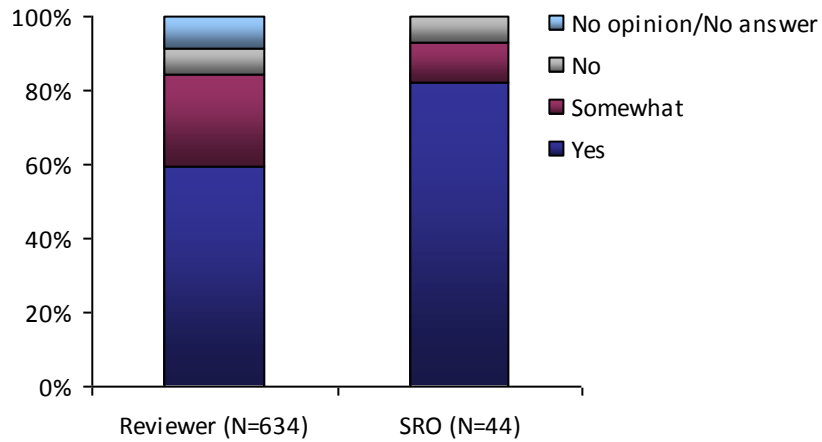
How would you compare the study section chair's participation in the AED discussion to face-to-face review?



**Fairness.** The survey explored respondents' views on the fairness of AED study sections. The answers varied by group, with 60% of reviewers and 82% of SROs indicating that the results were fair and another 25% of reviewers and 11%, respectively, characterizing the results as "somewhat fair" (Figure 11). Note that some of these data are difficult to interpret without a comparison to the comfort levels with the outcomes of traditional study sections.

**Figure 11. Fairness to the Applicants**

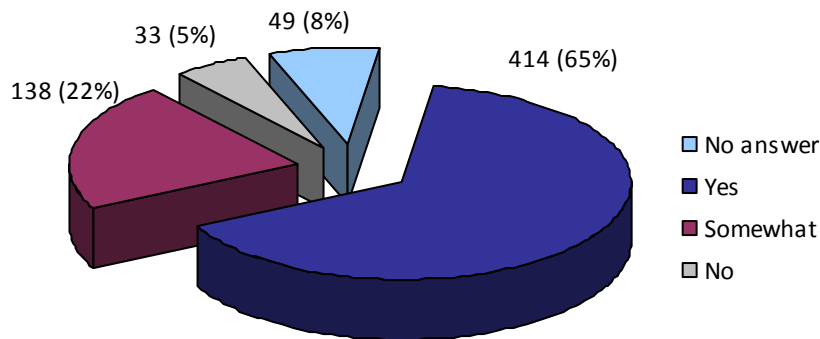
Did the AED review process result in outcomes that were fair to the applicants?



About two-thirds of the reviewers (414 or 65%) emerged from the AED session feeling sufficiently well-informed to make a fair evaluation of the applications assigned to them and another quarter reported having somewhat sufficient knowledge (Figure 12).

**Figure 12: Ability of Reviewers to Evaluate Applications**

Were you sufficiently well-informed at the end of the AED process to make a fair evaluation of the applications assigned to you?



The level of reviewer engagement and the quality of the discussion were commonly noted in the open-ended answers. A majority of reviewers took the time to give us their opinions and most of the open-ended question responses were positive. Curiously, some aspects of the discussion emerged both as the most-liked and the least-liked by respondents. The following *benefits* of AED in terms of discussion were identified:

1. Depth, quality, and rigor
  - Greater depth and focus of the discussion

- Opportunity for reviewers to consult with the literature and to develop more concise and considered answers
- Better quality of reviewers
- 2. Influence of forceful personalities, comfort in expressing opinions, and conflict resolution
  - Reduced influence of forceful personalities
  - Reduced “herd mentality”
  - Feeling of security in expressing opposing opinions
  - Increased chance of resolution of contentious issues
- 3. Fairness
  - Increased objectivity
  - Opportunity to correct wrong comments before scoring
- 4. Format
  - Having a written record of the discussion

Respondents also identified a number of *limitations* (on the average, less than 10% of all open ended comments were negative):

1. Depth, quality, and rigor
  - Impersonal nature of discussion
  - Loss of nuances and ability to judge the strength of someone’s position
  - Limited participation, in particular by unassigned reviewers
  - Reduced rigor and ability to follow the discussion
  - Loss of team work and intellectual dynamic
  - Little or no discussion of some applications
  - Inability to monitor the level of reviewer engagement
  - Difficulties in understanding proposals when they were not presented by experts
  - Difficulties focusing on the discussion; too many distractions for reviewers participating from the office
  - Increased chance that comments would be misinterpreted
2. Influence of forceful personalities, comfort in expressing opinions, and conflict resolution
  - Increased difficulty in resolving contentious issues
  - Disadvantage for timid reviewers, reviewers unwilling to type, and non-native English speakers
  - Increased influence of forceful personalities

## 2. Fairness

- Increased probability that irrelevant, minor, or erroneous comments would derail the discussion

## 3. Format

- Too much typing
- Interruption in discussion flow due to wait for comments
- Challenges for review chairs in steering and moderating several parallel discussions
- Difficulties for reviewers based outside of the EST time zone

Benefits and limitations of other aspects of AED communicated by respondents in open-ended answers are presented in the next section.

## Satisfaction with AED

Respondents were asked to indicate their level of satisfaction with various technical aspects of AED, including access to the materials posted on the site, navigation capabilities, appearance, speed, and others. The overall satisfaction with AED appeared to be high among reviewers and SROs (Table 2). Some respondents experienced problems with timing out of sessions (10% of reviewers and 21% of SROs), accessing reviewer critiques (7% of reviewers and 9% of SROs), and following the discussion (21% of reviewers and 23% of SROs, Table 2).

**Table 2: Level of Satisfaction with AED Tool**

Were you satisfied with the following aspects of AED?

	Reviewer, N (%)	SRO, N (%)
Access to AED	566 (89)	43 (98)
Navigation of AED	541 (85)	38 (86)
Instructions for use of AED	525 (82)	39 (89)
Technical support during AED	528 (83)	41 (93)
Speed of AED	544 (86)	39 (89)
Appearance of AED	544 (86)	35 (80)
Timing out of session	512 (81)	34 (77)
Access to reviewer critiques	551 (87)	40 (91)
Access to reviewer scores	Not applicable	40 (91)
Access to SRO	542 (86)	Not applicable
Entering critiques	536 (85)	Not applicable
Scoring of applications	488 (77)	Not applicable
Following discussion	463 (73)	33 (75)
Overall experience	460 (73)	39 (89)

Additional technological glitches emerged from open-ended answers, including inability to see parallel discussion in multiple windows, not knowing when new comments were posted, slowness of the system and unsatisfactory interface, inability to cut and paste from previous comments,

and the need to navigate back and forth to access information. One reviewer was concerned that information was not secure and could potentially be seen by an applicant.

Respondents also reported several non-technological benefits and limitations of AED. Not having to travel was a key benefit reported by many reviewers and SROs. Lack of travel allowed for more efficient use of reviewers' time and facilitated recruitment and scheduling of reviewers by SROs. While appreciating not having to travel, many reviewers mentioned loss of networking opportunities offered by in-person meetings as an aspect of AED they liked least. It was clear that many reviewers used face-to-face study sections to build personal connections and to discuss their own work. One reviewer also noted that traditional study sections gave opportunities for younger scientists to observe the thought process and negotiation skills of more established researchers and if these opportunities were lost the quality of reviewers would decline over time.

### **Suggestions for Improvement**

The survey data revealed that a small number of respondents, about 10%, were either exuberantly positive about the system ("we need much more use of this format," "I really liked AED," "way to go in the future," "can't say enough good things about this") or were convinced that it was irreparably flawed ("get rid of it," "count me out, I will never do it again," "I do not want my applications to be reviewed by AED"). Most respondents adopted a moderated position, suggesting that the system had potential, but required changes to how and when it should be used.

The following suggestions were made:

1. Training on AED
  - Conducting a mock AED meeting in advance, to get reviewers comfortable with the system
2. Number and type of applications discussed with AED
  - Using AED format when the number of applications was small, 10 or fewer
  - Using AED for smaller grants (e.g. R21s), fellowships, but not for R01s
  - Using AED only for revised applications
3. Reviewer participation
  - Having a specific window of time, 2-3 hours, when all reviewers are required to log in. Making sure that everyone was on line was judged particularly important at the beginning and conclusion of the AED meeting
  - Requiring that all reviewers, including unassigned, participate in a discussion; not accepting scores from unassigned reviewers who did not participate in the discussion; providing monetary incentives for active participation; requiring a minimum length for comments
  - Using electronic prompts to remind unassigned reviewers to submit comments; requiring unassigned reviewers to check a box that they had read the critiques
  - Assigning more secondary discussants

- Having a primary reviewer post a summary of the discussion, presenting pros and cons of the proposal, to encourage input from other reviewers
4. Format and process
- Supplementing AED with teleconferences or videoconferences, to discuss thorny issues and to facilitate consensus; using webcams; balancing AED with periodic face-to-face meetings
  - Posting reviewer photos and biosketches to facilitate personal connections
  - Having the system alarm users when a comment is posted; using split screen to allow visualization of several threads
  - Remind meeting chairs of their responsibility with regard to initiating, leading, and moderating the discussion
  - Remind meeting chairs to label reviewer comments with their role on application (e.g. primary reviewer), rather than with names
  - Highlighting revisions made by reviewers to their own comments, to make it easier for other reviewers to see them.

## Conclusions

The AED process, as conceived and implemented by NIH, was expected to result in several benefits to the NIH and to the scientific community. Survey data collected by CSR allowed us to begin evaluating whether any of these benefits have been achieved. It emerged quite clearly from the survey data that AED increased scheduling flexibility, one of the intended benefits. Seventy percent of SROs reported that not having to request travel facilitated reviewer recruitment. Many reviewers reported that being able to participate in the discussion at the time of their choosing and for as long as they wished was a benefit. The majority of reviewers indicated that not having to travel for a review meeting was an advantage. Several respondents also commented that AED-style study section attracted better reviewers. However, while appreciating the convenience of AED, many reviewers regretted a missed opportunity to network with other scientists.

Another intended benefit of AED was in reducing the influence of forceful personalities. Data on this topic were contradictory. Some participants felt that electronic discussion did “remove the personality factor.” Others reported that strong comments “swayed the discussion.” On balance, it appeared that AED was viewed as resulting in a more congenial review environment.

Likewise, respondents were split on whether the AED resulted in more thorough and thoughtful review. Many reviewers said that AED provided an opportunity to consult the literature, to reflect on the proposals and on the views of others, and to develop more considered and constructive summaries. They also noted that the discussion stayed focused on important points and that chances of reaching a consensus opinion were greater when the review was conducted on line. Some participants expressed concerns with the quality and rigor of the review, however. These individuals said that in some sessions the discussion was poor, that some proposals received only scant commentary (in particular from unassigned reviewers), that contentious issues were more difficult to resolve, and that the strength of reviewer opinions about the proposal was difficult to gauge. Reviewers also noted that lack of team dynamic was detrimental to the quality of the review.

Another intended benefit of AED was to simplify the management of conflicts of interest during the review. This issue has not been explicitly explored in the survey, thus the information related to this topic was very limited. Six SROs (14%) indicated that setting up or changing conflict of interest information was difficult. One SRO commented that having to remind reviewers to sign their conflict of interest forms was the least favorite aspect of the review.

Finally, it is reasonable to expect that not having to compensate reviewers for travel and lodging will reduce costs for NIH. However, many survey respondents recommended combining AED with some form of visual and/or auditory aids, such as webcams, teleconferences and videoconferences, as well as with periodic in-person meetings. Further, at least one respondent recommended offering monetary compensation to encourage reviewer participation in AED. Finally, some NIH staff reported that participating in AED required greater time commitment than face-to-face review. The use of additional communication tools, which is often associated with added costs, offering monetary incentives to the reviewers, and having to increase the number of SROs to cope with greater review burden may decrease cost benefits of AED compared to in-person review.