Evaluation of the Education Program for Supercomputing '95

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EXECUTIVE SUMMARY

SC '95 was held in San Diego, California on December 3-5, 1995. The Education Program was attended by 220 teachers representing 35 states.

Evaluation of the SC '95 Education Program indicated a very high level of satisfaction with all aspects of the program. Teachers viewed the hands-on sessions and the opportunity to network with other education professionals as the most valuable aspects of the program. Longer and a greater number of grade-appropriate hands-on lessons were requested for next year's education program.

Several suggestions related to programmatic issues for inclusion in future education programs were made by teachers attending SC '95. These include: greater variety of topics for k-5 teachers, a C++ session, repeat sessions for "hot" topics such as JAVA, and additional sessions on assessment and evaluation. In addition, survey respondents requested structured, small group sessions in which "experts" present information related to topics such as grant writing, formulating lesson plans, and dealing with technology issues as related to educational reform.

Other suggestions were procedural or organizational. These included providing a pre-conference schedule of workshops to be attended by the individual teacher, enough hand-outs for all participants, hand-outs describing session content in greater detail, and more cross platform information such as how to implement a program in the PC environment.

If the purpose of the SC Education Program is in the advancement in applying and educating the nation's youth in the power of computational science, then submissions for papers, panels, and hands-on sessions should be critically evaluated with that in mind.

One suggestion for future planning includes offering sessions which are consistent with the grade and experience levels of teachers who will be attending the conference, such as more sessions for K-5 teachers. Before accepting sessions for presentation, consideration might also be given to what format (i.e. lecture, hands-on, small group discussion, etc.) would be appropriate to facilitate implementation of these programs in the classroom. As computational science and the use of technology in the classroom matures the SC Education Program, needs to be reexamined to target to provide information not available locally to the education community.

Evaluation of the Education Program for SC'95

The evaluation form for SC'95 provided the opportunity for participants to indicate their level of satisfaction with the Education Program using both qualitative and quantitative methods. The 117 teachers who responded to the Education Survey for SC'95 represented diverse teaching fields. The greatest number (47.8%) indicated that they teach science courses. The two other most frequently represented disciplines were mathematics (37.6%) and computer applications (34.19%). Eighty five percent of the responded taught in grades 9 through 12; 23% taught at the elementary school level and 23% taught at the middle school level (grades 6-8). Topics addressed in the evaluation form were: hands-on sessions, Educational Papers, Panels, overall program quality, program organization, plans for sharing information from SC'95, best aspects of SC'95, suggestions for improvement and recommendations.

Evaluation of Hands-On-Session

Participants were asked to indicate their level of satisfaction with various aspects of the Education Program. A 5-point Likert format with anchors ranging from very unsatisfied to very satisfied. Not applicable was a choice for those who had not attended the sessions. Participant responses for each hands-on session are described in Table 1. As can be noted, a high level of satisfaction with all sessions was indicated.

Written comments describing the hands-on sessions also indicated a high level of satisfaction with these sessions. When technical problems were severe enough to interfere with the opportunity to learn, participants indicated dissatisfaction. Fortunately, this was reported as extremely problematic in only one session.

Two suggestions were made for consideration by the SC'96 committee with respect to hands-on sessions. It was suggested that differences in ability levels of participants should be taken into account when planning sessions. Suggestions included: 1) indicating the skill level necessary in the brochure which advertises the sessions and 2) providing additional helpers to alleviate difficulties experienced by novices. Second, a greater number of hands-on sessions targeting the K-5 grade levels would provide information which could be directly used by K-5 classroom teachers was requested.

Table 1. Ratings for Hands-On Sessions

	n	VD %	D %	N %	S %	VS %
Beginning HTML	38	0	3	0	47	50
From Your Spreadsheet to Mine	18	6	11	16	56	11
Advanced HTML	28	0	4	4	21	71
Project Development	18	0	11	17	39	33
Ray Tracing	24	0	0	0	21	79
Blue-Skies in K-12 Education	22	0	5	0	36	59
Collage	24	0	4	12.5	62.5	21
Using Stella to Solve Real World Problems	39	3	5	18	38	36
CU-SeeMe Desktop Videoconferencing	39	3	5	18	38	36
Using Web Browsers as an Education Tool	24	0	4	21	21	54
Hot Java	23	17	17	13	31	22
Climate Modeling	21	0	0	9	29	62
Image Processing in Math and Science	27	4	4	14	52	26
The Poor Teachers' Guide to the Internet	29	0	7	31	21	41
Chemistry Visualization	18	0	5	17	28	50
Actively Using Technology to Learn Science	23	0	0	9	30	61
Curriculum Design for the WWW: Project A	48	0	0	8	25	67
Presentation of Staff In-Service on the Internet	66	1	0	14	52	33

N/A - Not Applicable
VD - Very Dissatisfied
D   - Dissatisfied
N   - Neutral
S   - Satisfied
VS - Very Satisfied

Education Panels

The Education Panels were each attended by approximately 50% of the total group of teachers. Eighty five percent of those attending "New Trends in Supercomputing" indicated that they were very satisfied to satisfied with the panel presentation. In addition, a strong majority (73%) of those attending "Implementing Computational Science into Classrooms," also indicated rankings of satisfied to very satisfied.

Specific written comments regarding the panel sessions include requests for additional sessions which address issues of assessment and evaluation. It was suggested that further sessions should continue to include "expert" presentations as well as allow time for teachers to interact with each other regarding assessment and evaluation. In addition, greater emphasis on K-5 curriculum and assessment was requested for inclusion in panels and presentations.

When planning next year's schedule, it was also suggested that panels and paper presentations be held during the morning time slots rather than after lunch. It was noted that, after lunch, time was better spent in hands-on sessions than to have to "sit and listen".

Education Papers

The Education Paper session was attended by only 45.7% of the respondents. Of these respondents, 93% indicated a high level of satisfaction with the program, with 74% describing the session as satisfactory and 19% describing the session as very satisfactory. However, overall ratings for the paper session were less positive than for any other aspect of the program. Consideration might be given to revamping the format for this session.

Education Program

The overall quality of the Education Program for SC'95 was rated as very satisfactory by 65.5% of the respondents. An additional 18.2% described the overall program as satisfactory. Thus, 83.7% of respondents indicated satisfaction with the program. Of the remaining 16.3%, 13.6% endorsed the not applicable category. A similar pattern was reported with respect to the organization of the program, with 83.7% indicating that they were "satisfied" or "very satisfied" with the program. Further, the hands-on computer facilities were also viewed as satisfactory (95.4%).

The comments regarding overall program quality were extremely positive. The following direct quotes are representative of the written comments:

- "I learned a lot about what is coming in the future, but I don't feel I got enough practice on the present tools currently available to teachers."
- "Could use lapel mikes and more helpers in most sessions, but I'm not complaining."
- "The quality of the hands-on sessions was more variable this year. More sessions organized by teachers who have no release time might help keep the focus within improving classroom teaching."
- "The hands-on sessions were the most powerful."

- "Definitely continue the program. The hands-on sessions, panel discussions and poster presentations I found very useful. There is the potential for direct transfer to my classroom with a number of the topics. The ability to meet with other educators working with the same goals and problems is very useful."

Education Program Organization

The organization of the Educational Program was viewed in an extremely positive manner by the participants. Ninety six percent indicated a high degree of satisfaction with the program.

Participants' comments regarding the program organization were extremely positive. The following direct quotes were typical of responses:

- "This was a great session. I feel that I learned a lot from attending this convention. I picked up lots of ideas and, although I may not be able to implement all of them, I hope some will become reality in the near future."
- "When looking at session choices, I was always in the best session for my particular needs. Must have been horrendous to organize. I appreciate the effort."
- "I would like to see more hands-on sessions."

Hands-on Computer Facilities

In rating the computer facilities available, all but one participant indicated a high degree of satisfaction. The written comments also support this high level of satisfaction.

Comments by the participants regarding the computer facilities were generally positive. Typical responses were:

- "I was astonished that you made the attempt to provide computers to as many people as you did. The hands-on activity was invaluable."
- "Well organized in spite of some technical difficulties."
- "I wish that the presenters could have been on a platform of some type so we could see them more easily. The screens were large and it was sometimes hard to see the shorter presenters."
- "My only problem is that I do not use a Mac and there are none at our school. Any chance of getting some PC with Windows another year. I always get anxious as to whether I will be able to do all that I learned on my Windows when I return home."
- "The technical people who did the set-ups in the rooms did an amazing job and were always helpful and accommodating when a problem arose Doug and Deb and ??others. The "fast" ethernet connections were wonderful!"

Plans for sharing SC'95 Information

Plans for sharing information were quite variable and ranged on a continuum from implementing in a specific classroom to helping shape a vision for technology. Comments which provide the spectrum of this continuum included:

- "inspire interest in other teachers and students."
- "passing out handouts."
- "putting pressure."
- "using SC'95 experiences to conduct staff development."
- "helping obtain funding to implement ideas learning at the conference."
- "providing a report to the Statewide Systemic Initiative Executive Board."
- "helping shape a vision for technology for individual schools and systems."

Suggestions for Improvement

A strong majority of participants did not offer suggestions for improvement; as they indicated that "nothing comes to mind". However, some specific suggestions which were made should be considered in planning for future programs. These included:

- "greater K-5 emphasis if elementary teachers are invited to attend the conference."
- "participants' receiving a pre-conference schedule of sessions which they would attend."
- "more handouts."
- "a C++ workshop."
- "more hands-on sessions; with user expertise level should be specified."
- "providing a press release in the registration package that could be used by participating teachers with local media to advertise the program."
- "provide a copy of participants and presenters e-mail and URL addresses." (this was done)
- "providing cross platform applications so that PC users as well as Mac users could have experiences which translate directly to classroom use."

Best aspects of SC'95

Overwhelmingly, participants described networking with other teachers and the hands-on sessions as the best aspects of the conference.

Recommendations

Although some recommendations for program additions/revisions were offered, participants were quite appreciative of the SC'95 program. Some suggestions for consideration in future SC programs include:

- "repeat sessions for hot topics such as JAVA."
- "more and longer hands-on sessions."
- "provide assistance/information for classroom teachers on how to obtain funding for implementing technology."
- "provide small group sessions dealing with topics such as grant writing, formulating lesson plans, and dealing with issues on educational reform issues as related to technology."
- "holding a wrap-up party."