

Silicon Valley Ad-Hoc Committee on Education in the Optical Sciences

An examination of grass-roots needs
and entities to leverage for maximum
return on effort and longevity.

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CPO Meeting

5/7/2000

History

- Topic came out of our 1998 annual meeting of the officers from SCV LEOS and N. Cal. OSA Chapters.
- Incorporated into our MOU in 1999.
- Identified key volunteer for lead role.
- Input requested via newsletter and chapter meetings.
- The subject of significant brainstorming among the officers and interested people in 1999 and 2000.
- Action item given in CPO meeting at Photonics West '00.
- Announced and held two ad-hoc meetings:
 - Wyndham Hotel 4/19/00
 - Pelham Foundation 5/4/00

- Attended Ad-Hoc Meetings
 - SCV LEOS Officers
 - OSNC Officers, Stanford OSA Chapter Officers
 - San Jose High School District Science Coordinators
- Provided input, was not able to attend
 - San Jose State University & Laser Kit/Training Supplier
 - Local Chapter American Association of Physics Teachers
 - Local Chapter American Association of Engineering Societies
- Words of Encouragement
 - Paul Shumate, Tony Siegman, D.A.B. Miller, Aimee Gibbons...
- Missing
 - Other High-School Districts and Educational Entities
 - Local Non-Profit Foundations and Associated People
 - Local IEEE Section's Pace and K-12 Officers.
 - Local undergraduate professors wanting to push optics.

What we want to do

- Many well-intentioned outreach programs have failed in the past. We want to make a sustainable program.
- Most foundations waste money. We want to be frugal.
- Use available resources (usually match local needs).
- We do not want to burn-out our volunteers.
- Build success by establishing local linkages.
- We want to create a strong “need to know” about optics and (insert favorite topic here) in high-school and undergraduate students.
- We want to encourage and facilitate students with interest.
- We want to establish metrics to evaluate our success.
- Not create another bureaucracy. Not enrich administrators.

Philosophy to Date

- Fiscally conservative & technically imaginative
- Maximum return for minimum effort
 - Volunteers have very limited time.
 - Assume we will have no paid staff.
 - Entities exist for distribution, content, monitoring, etc.
- “Exploratorium” rather than “SJ Science Museum” model
 - Low budget, low glitz, high robustness, high longevity.
 - Carefully crafted, objectively tested, and qualified content
 - Continuous improvement of content (the hard part)
- The Ad-Hoc should play a “matchmaker” type of role.
 - Connect teachers, content, distributors, volunteers, societies...
 - Scalable without major ad-hoc intervention
 - Eventually get involved only when a phone call is needed.

Philosophy, continued

- Create three lists for each location
 - List of needs, teachers, schools
 - List of distributors, non-profit service organizations
 - List of companies that encourage volunteerism
- Avoid rigorous approach, allow teachers options.
- Build a tradition of success, while increasing our equity and momentum.
- Philosophy is independent of location and discipline.
- Assume money is readily available locally.
- Identify and leverage existing outreach programs.
- Don't re-invent the wheel

Of course this is an evolving philosophy and will change

Example of Philosophy

- Identify Needs
 - Silicon Valley school district science coordinators
- Identify Funding
 - National societies, local corporate and non-profit foundations
- Baseline Content, Fieldtrips, Video, CD-Rom
 - Local industries, academic, and government facilities
 - TBD for custom CD-Rom and video production
- Identify Distributor(s)
 - FOPAL for video and print media
 - RAFT for equipment loan and consumables
 - SVEC “Discover E” for presentations
- Commence Continuous Improvement
 - TBD for non-profit or consulting firm

Example Needs

- Needs will vary geographically and with time.
- Example from East Side S.J. High School District:
 - Consumables: Batteries, bulbs, paper towels, books, magazines
 - Tools: meters, reference materials, useful web sites, laser kits.
 - Learning: Speakers, tours, shadowing days, tradeshow, internships.
 - Volunteer: Ask-an-expert, mentoring, judging, science fair projects.
 - Training: Develop lesson plans using optics, optics videos
 - Grants: Fieldtrip, awards, sponsoring, Radio Shack, VWR Scientific
- Getting teachers comfortable with teaching optics.
- Some teachers will not use resources
- A master resource book would be most useful
- VHS Video and CD-Rom are preferred over the WWW.

Progress

- Explicit support from local chapter officers.
- Held several meetings, including with high school reps.
- Core of volunteers is “self-assembling”
- 28 people on ad-hoc email list.
- Found free, permanent meeting place
- Philosophy is solidifying, need input
- Generated a working document list of needs
- Generated preliminary list of optics tours & contacts.
- Working with SVEC to get list of companies.
- Identified 2 caches of optics journals to donate.

Proposals

- Create majordomos lists for local usage.
- Someone create a master list for nationwide resources in optical/physics education.
- Establish linkages at the local level between societies, teachers, foundations, distributors.
 - Seed money in SCV LEOS coffers.
 - Can raise money if properly documented.
 - Can generate and continuously improve content if a suitable firm can be identified.
 - Can manage and distribute material if a suitable firms can be identified.
- Adopt Exploratorium model.