

Optics-Ed Snapshot

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

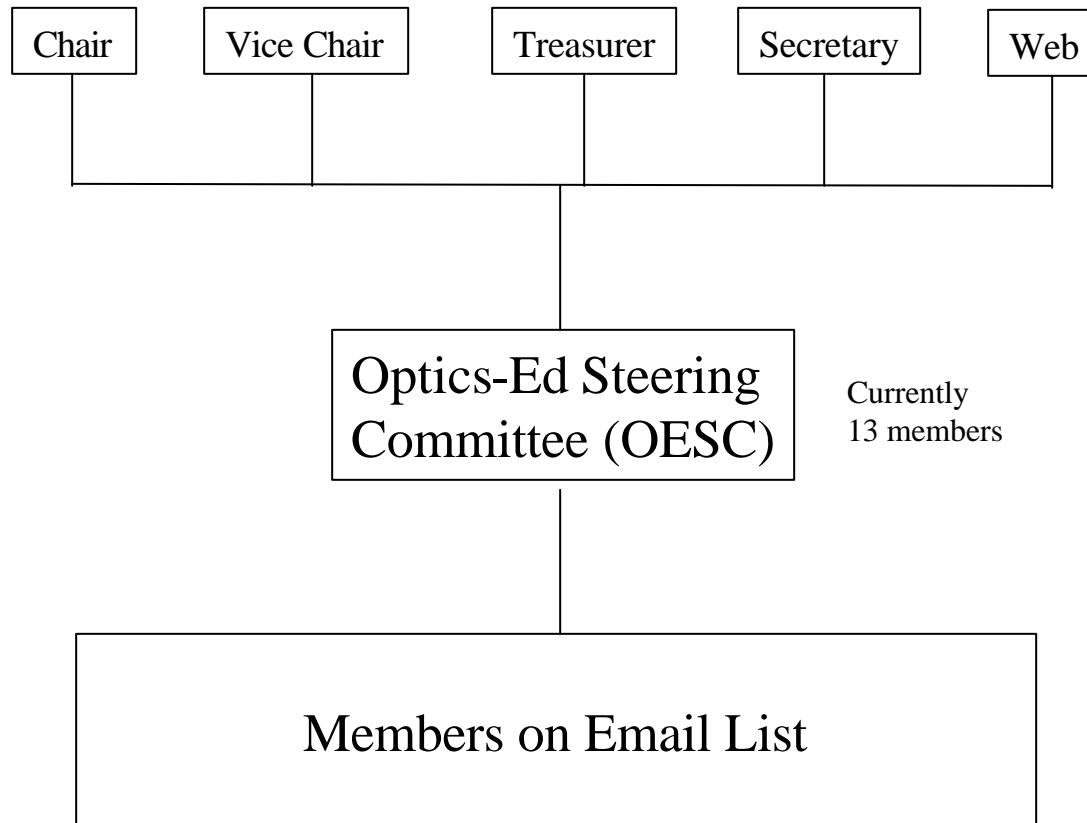
CPO Meeting

1/26/2003

What we are

- An informal group of people
- Operating as an *ad hoc* organization
- Operating with *ad hoc* rules
- No legal standing of our own
- Not recognizable by external entities

Interim Structure



OESC Make-up

OESC MEMBER	MEMBER REP	BRINGS TO TABLE
California Science Teacher's Association	Richard Filson	Promotion of Projects to STEM teachers
The Exploratorium	Paul Doherty	Review of Projects for safety, ergonomics, etc.
SJ East Side Union High School District	Heidi Black	Input from 400+ science teachers
IEEE Santa Clara Valley K12 Committee	David Fong	Assistance with funding, web site
IEEE SCV Laser & Electro-Optics Society	Bob Dahlgren	Leadership, technical review

Lawrence Livermore National Laboratory	Dick Farnsworth	Technical review, kits, training
The Optical Society of Northern California	Paul Griffiths	Leadership, technical review
IPC	Edwin El-Kareh	Vision, fundraising experience.
Resource Area for Teachers (RAFT)	Paul Grossi	Meeting/training space, circulation of kits, etc.
Schmahl Science	Belinda Schmahl	Focus groups, testing of projects
San Jose City College	Sydney Sukuta	Post-secondary perspective
San Jose State University	Dan Walker	Training space, college of ed perspective
Silicon Valley Engineering Council	Cliff Monroe	Promotion, linkages

What we want to do:

- Many well-intentioned OPs have failed in the past. We want to make a sustainable program.
- Most OPs waste money. We want to be frugal.
- Use available resources (usually match local needs).
- Build success by establishing local linkages.
- We want to create a strong “need to know” about optics and (insert favorite topic here) in middle, high school and undergraduate students.
- We want to encourage and facilitate students with interest.
- We want to establish metrics to evaluate our success.
- Market optics, photonics, and STEM positively to teachers, students, parents, and the general public.

What we DON'T want to do

- We do not want to burn-out our volunteers.
- Not create another bureaucracy. Not enrich administrators.
- We do not want to re-invent the wheel.
- We do not want to put off teachers.
- We do not want to develop lots of content.
- We do not want to clash with curricular standards.
- We do not want to have more than one or two face-to-face meetings annually.

Mission Statement

- Help to generate the wonder and excitement of optics for students in school and beyond.

Tagline

- Recruiting young minds to the ‘Order of Photonics Wizards’

Operational Mission Statement

- Create a framework for interaction that leverages existing local resources in such a way to create a sustainable, low maintenance K-12 optics outreach program that is scalable, durable, flexible, and affordable.
- Explore, develop, and support members of the community that want to be part of a science outreach program.
- Coordinate with local industry and other local STEM organizations in reaching out to our educators in order to meet their needs.
- Coordinate with meta-organizations such as professional societies, foundations, and government agencies for support, content, and best practices.

Philosophy to Date

- Philosophy is independent of location and discipline.
- Fiscally conservative & technically imaginative.
- Maximum return for minimum effort.
- Build tradition of success, increasing equity and momentum.
- Use available resources (usually match local needs).
- Avoid rigorous approach, allow teachers options.
- Adopt best practices, and not re-invent the wheel.
- Assumptions
 - Volunteers have very limited time.
 - There will be no paid staff.
 - Entities exist for focus groups, vetting, distribution, monitoring, etc.
 - Content will be provided by national-level entities at no cost.
 - Money is readily available locally (OP needs to pass legal muster).

Philosophy, continued

- Identify and leverage existing local OPs wherever possible.
- Create a framework for interaction of the various local Ops and users.
- Local and national entities maintains resource lists.
- “Exploratorium” model
 - Low budget, low glitz, high robustness, high longevity.
 - Carefully crafted, objectively tested, and qualified content.
 - Continuous improvement of content (the hard part).
- The OESC should play a “matchmaker” type of role, to establish linkages between various local entities:
 - Connect teachers, content, distributors, volunteers, societies...
 - Scalable without major OESC intervention.
 - Eventually get involved only when a phone call is needed.
- Content should be as free as possible to end-user.
- We want to establish metrics to evaluate our success.

Desirable Outcomes

- Create an optics outreach program (OP) that creates excitement in Middle and High School teachers and students which leads to an increase in STEM studies.
- Encourage K-12 studies Science Technology Engineering and Mathematics (STEM).
- Attract historically under-represented groups to STEM.
- Prime the education pipeline for post-secondary schools.
- Build connections & linkages between local OP entities, creating a framework for interaction.
 - Teachers, students, parents, and other users of content
 - Prof. societies, volunteers, content, and other resources
 - Foundations, programs, distributors, and facilitators
- Organize competitions, optics activities, science fair prizes.

Progress since Last Report

- Presentation to CPO on 5/27/2002 at CLEO.
- Fall meeting held on 12/19/2002
- Transitioning from interim officers
- Radio Shack account established and endowed with \$420.00.
- Officers have discussed membership, bylaws and structure with LEOS, OSA and CPO executives.
- 97 members on e-mail list

Financial Report

- Using the IEEE Foundation 501©3
- 2002 Overhead = Zero \$
- Inflows
 - Donation \$100 from LEOS 2/26/02
 - Donation \$100 from SVP 2/26/02
 - Donation \$20 from David Fong 3/17/02
 - Donation \$200 from IEEE Santa Clara Valley 12/6/02
 - Donation \$100 from LEOS 11/26/02
- Outflows
 - Disbursed \$220 to Radio Shack account 5/13/02
 - Disbursed \$200 to Radio Shack account 12/6/02

Fall Meeting Summary

- 12/19/2002 at Oak Grove HS in SJ. Low turnout.
- Motion to form organization committee
- Motion to separate elected/appointed officers
- Motion to inquire about snail mail address
- Motion to fund, authorize, and announce the Science NanoGrant project
- Motion to close the Optics Kit project, for lack of \$
- Motion to authorize Optics Resource Book
- Motion to submit abstract(s) to ETOP
- Motion failed, to endorse web site

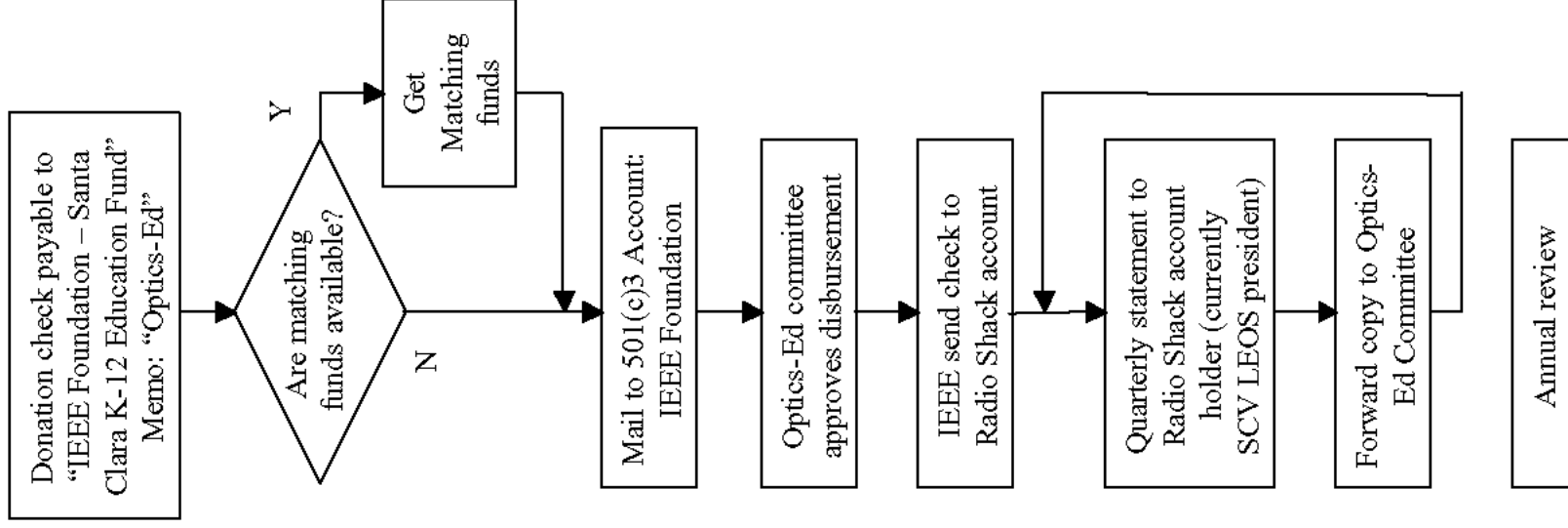
2003 Elected Officer Results

- Chairperson – Paul Griffiths
 - Vice-Chair – Edwin El-Kareh
 - Treasurer – David Fong
 - Secretary – Heidi Black
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- The officers now have the power to appoint people to web, list manager, etc. positions
 - Appointed Officers – Need Volunteers

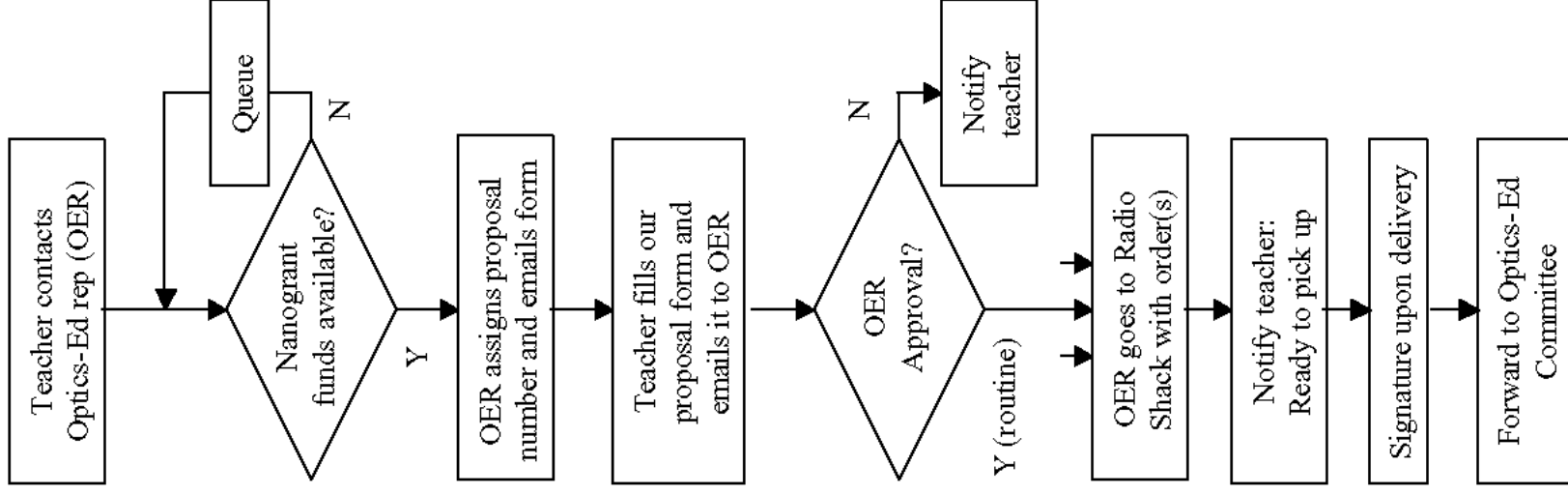
Project #2002-1 – Consumables

- Problem
 - STEM teachers often spend their own cash on consumables such as batteries.
- Solution
 - Radio Shack account, endowed with donations.
 - *Teachers may request items, \$10 maximum, until account is exhausted.*
 - Optics-Ed rep procures items and distributes.
- Needs
 - Donations to IEEE Foundation → K-12 Fund
- Announcement will be made to teachers shortly

INFLOW



OUTFLOW



Optics-Ed Science Nanogrant

<http://www.ewh.ieee.org/r6/scv/k-12/optics.html>

Instructor: Fill out this portion before emailing to Optics-Ed representative. All fields are required.

Applicant _____
School _____
Address _____
Phone _____
Email _____
Proposal Number _____ (Obtain this from Optics-Ed representative)
Class year _____
Class title _____
Description of item(s) requested _____
Amount requested _____ estimated amount <input type="checkbox"/>
Purpose _____
Date _____

INSTRUCTIONS: (1) obtain this form and proposal number from Optics-Ed representative; (2) fill out form using items from Radio Shack; (3) e-mail unsigned form to Optics-Ed representative; (4) upon approval applicant will be notified by email when items are ready for pickup; (5) sign printed form upon receipt.

Maximum amount of Nanogrant is ten US dollars (\$10.00). Funds are limited. One Nanogrant per teacher. Instructors for grades 5 through 12 are eligible. A valid e-mail address is required. All decisions are final.

Items must be science, technology, engineering or mathematics related. Optics-related proposals are encouraged. Items must be consumable, for example batteries, light bulbs, LEDs, wire, resistors, lenses, and other small parts. Inappropriate items would include cash, appliances, media, and office supplies.

For Optics-Ed Use Only.

Project Number <u>001</u>	Reconciled _____
Title <u>Radio Shack Consumables Account</u>	
Grant Number _____	Grant Amount _____
Approved by _____	Date _____
Optics-Ed Committee Member Signature _____	

Do not sign below until directed to by Optics-Ed representative.

I certify that Nanogrant items will be used only for educational purposes, and release Optics-Ed from all liability.	
Received by _____	_____
Teacher Signature _____	Date _____

Optics-Ed representative: Heidi Strahm Black

BlackH@exchange.esuhsd.org

Project #2002-3 – Resource Book

- Problem
 - STEM teachers and other consumers are often unaware of local (often free) resources.
- Solution
 - Generate resource booklet
 - Distribute to teachers
 - Mirror booklet on www
- Needs
 - Editor, chapter contributors
 - Help from National societies
- Chairperson and editor has volunteered

Resource Book Contents

- Master Resource List for Teachers
 - Optics kits and equipment available.
 - Class lesson plans incorporating optics.
 - WWW sites, VHS, CD-Roms for content.
 - Career info for kids and councilors.
 - Volunteers, tours, speakers, mentors, etc.
 - Awards, funds, grants, recognition.
 - Optics workshops, boot camps, fairs, etc.
 - Essential books.
 - Training for teachers.

Resource Book Contents

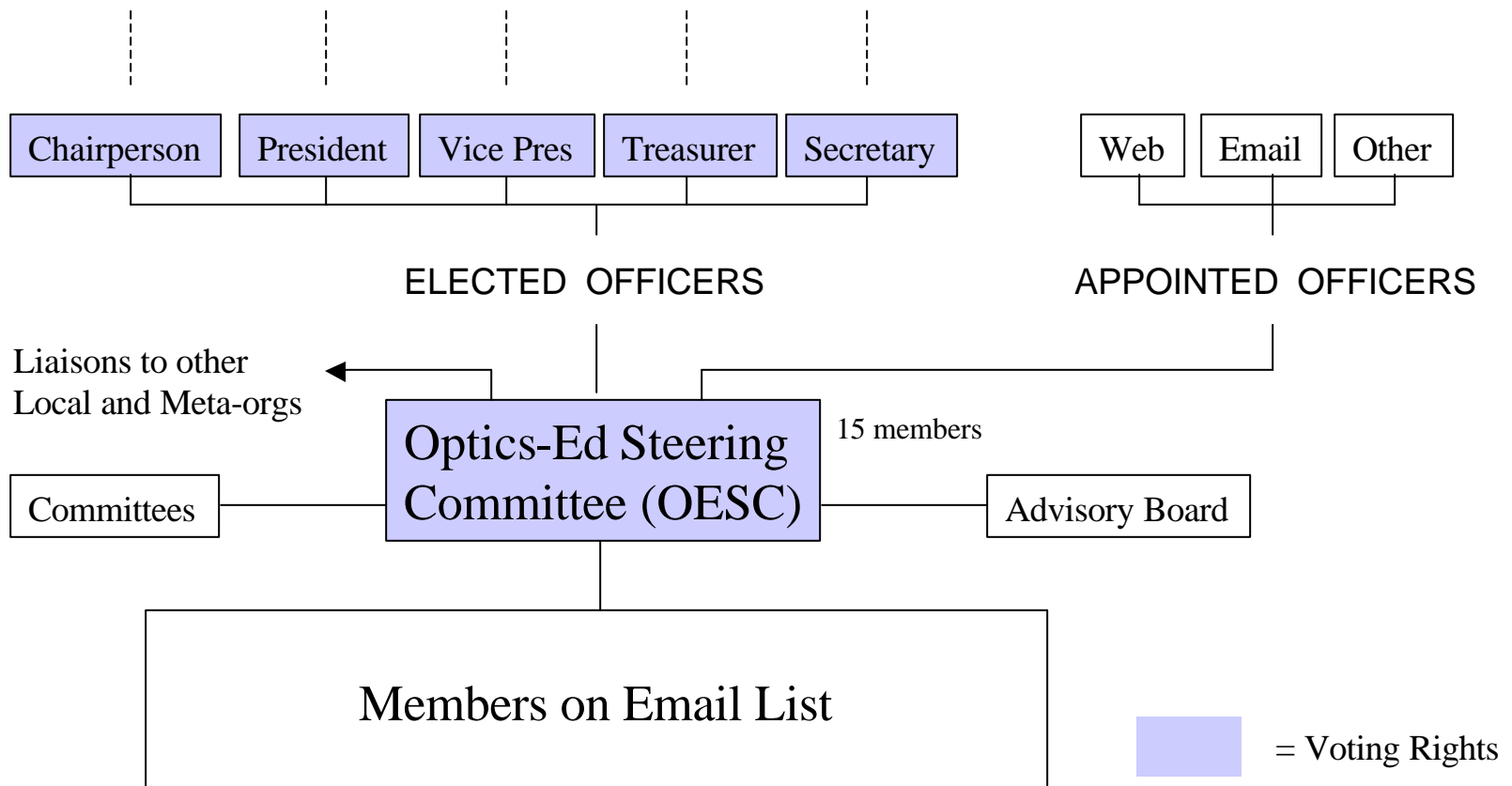
- Living lists, maintained at local level
 - List of local teachers, schools, and projects, and what are their needs to encourage STEM.
 - List of local distributors, non-profits, OPs and what type of content and equipment is available.
 - List of local volunteer opportunities and companies that encourage volunteerism, tours, lectures, etc.
- Living lists, maintained at national level
 - Aggregated best practices for OPs.
 - Content for instructors, students, parents.
 - Pointers to navigate to the above local web sites.
 - Lesson plans meeting science education standards.

Need to Organize to Move On

- As an entity of the OSA? LEOS?
- As an entity of CPO? SPIE?
- As an entity of IEEE?
 - A new chapter of IEEE Education Society
 - Incorporated into the SCV ExCom as part of the existing k-12 committee
 - As a cross-society “council” in IEEE, like PSTC
- As an entity of IPC, SVEC, PMAC, College?

Proposed Structure

Meta-Organization



What Meta-Organizations Can Do

- Provides legitimacy, structure, bylaws template, etc.
- Provide liability protection for officers and OESC.
- Provide staff support to supplement volunteers.
- Provide web site, 501(c)3, mail drop, email reflector.
- Create master lists for nationwide resources.
- Generate/improve high-quality content for teachers.
- Share best practices from other OPs.
- Coordinate our OP with other OPs.
- Career push to parents and councilors.
- Get CEOs to push volunteerism.

Information

- ❖ Paul Griffiths (650) 965-9887
- ❖ Edwin El-Kareh (408) 774-9300
- ❖ www.ewh.ieee.org/r6/scv/k-12/optics.html
- ❖ optics-ed@ieee.org
- ❖ Next Meeting 2/20/2003 at RAFT in San Jose, 6-8PM