

Dynamic and Contemporary Science Fair Projects

IPRO 330
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Presenters:

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The Problem



- Chicago Public School (CPS) students have problems with:
 - Deficient presentation skills
 - Data analysis
 - Basic laboratory techniques
 - Project ideas
 - Finding resources

More Problems

- CPS teachers have problems with:
 - Student engagement
 - Time restrictions
 - Availability of resources



The Previous Objectives

- Provide a website as a comprehensive resource
- Attract CPS teachers and students
- Increase the number of visits to our website
- Improve the quality of the website content



Previous Accomplishments

- Established contacts
- Publicized the website and team efforts
- Attended Science Fairs
- Google Analytics tool



Lab Fest! Fall 2008

Another Problem

- Website is almost complete
- Are we really helping students?
- Lack of interaction and feedback

Test	CPS Overall % Meet/Exceed							
	2001	2002	2003	2004	2005	2006	2007	2008
ISAT								
Math	34.8	37.7	41.7	46.8	45.7	64.0	68.6	70.6
Science	43.0	45.5	47.5	48.4	49.2	63.3	60.4	62.6
ACT								
Math (mean)	16.7	16.7	16.6	16.8	16.9	17.1	17.4	17.4
Science (mean)	16.3	16.4	16.8	17.5	17.3	17.2	17.5	17.8
PSAE								
Math	25.8	26.1	27.0	27.4	27.1	30	29	28
Science	20.3	22.1	23.1	27	26	24	25	25

Keynote Speaker

- **President Barack Obama:**

“I am challenging states to dramatically improve achievement in math and science by raising standards, modernizing science labs, upgrading curriculum, and forging partnerships to improve the use of science and technology in our classrooms.”

From speech to National Academy of Sciences

The New Objectives

- Propose for funding for a hands-on learning lab for CPS students: The Science and Math Learning Center (SMLC)
- Perform usability testing on our website with live student subjects



Student to Student Interaction



sciencefair.math.iit.edu

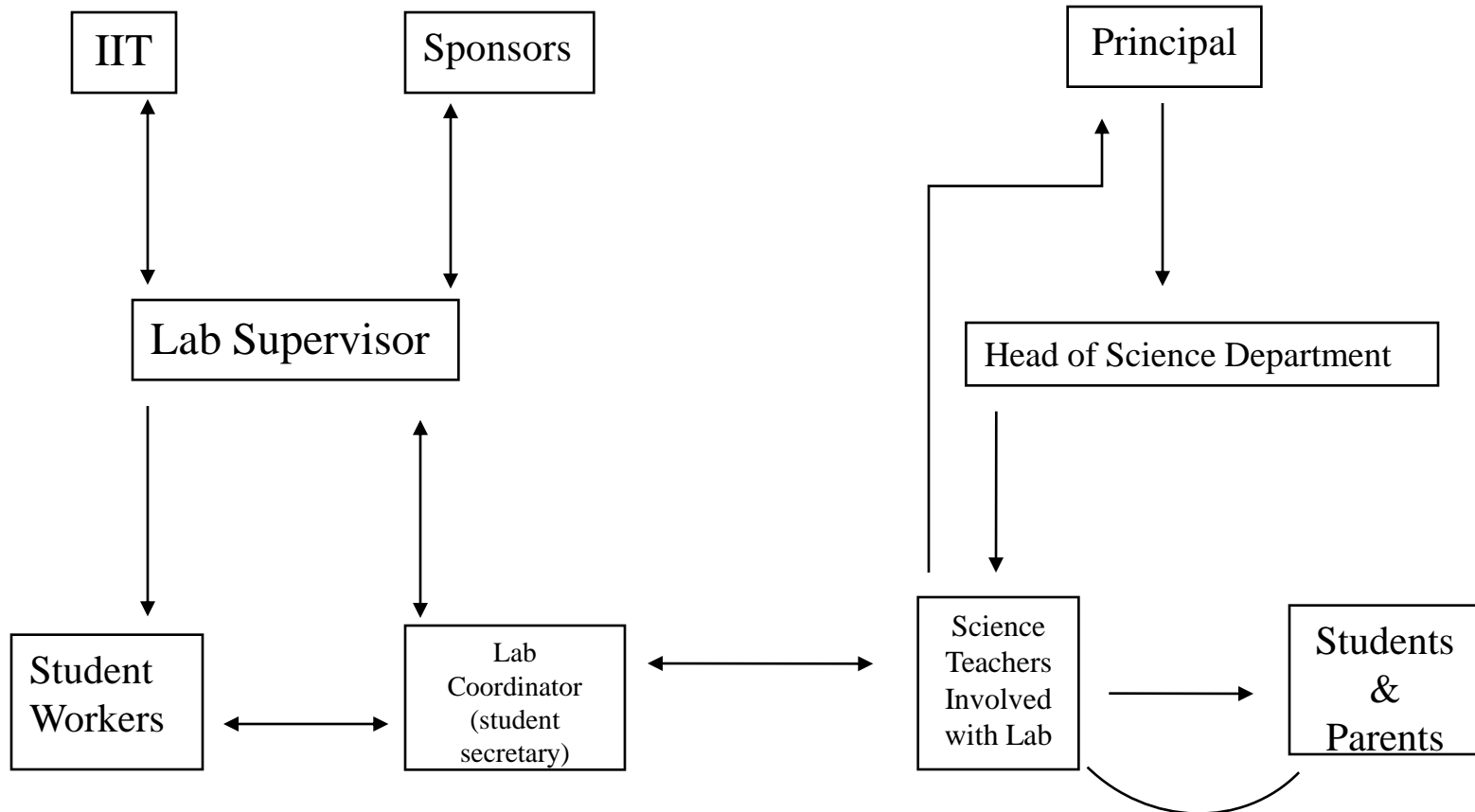
The Plan

- Investigate possible funding sources
- Attain teacher feedback about lab idea
- Get CPS school & teacher commitment
- Get university support
- Finished product: submitted proposal

Partnership & Leaders Flowchart

Lab Related

School Related



January-2010

January-2010

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

4 Monday

By appointment only

5 Tuesday

12:00 PM

5:00 PM

Prepare for Acondale middle school to come in

6 Wednesday

4:00 PM

7:00 PM

Acondale middle school will come in for experiments

7 Thursday

By appointment only

8:00 AM

9:00 AM

Clean up experiments from previous day

8 Friday

By appointment only

9 Saturday

9:00 AM

5:00 PM

Open hours

The Sub-team Plans

Grant Proposal Team:

- Research how to write a grant
- Analyze current data on teachers and science fair participants
- Fitting the idea to specific grant requirements
- Design curriculum modules

Website/Technology Team:

- Maintain website as needed
- Obtain Human testing certification
- Design usability testing
- Perform usability testing and analyze data

Productive Steps Taken

- Judged more science fairs
- Outreached to IIT community
- Outreach to CPS schools
- Extensive work completed on the Grant Proposal
- Usability testing of the website

Ethics

Pressures and Risks

- IRB usability testing approval (IIT and CPS)
- Legalities of working with students
- Website legal disclaimer

Results

- Judged area and city-wide science fairs
- Attended Engineer's Week
- Wrote possible curriculum
 - Filtration lab
 - Spectrophotometry
 - Electronics
- Teacher/Parent Survey Feedback
- Drafted grant proposal for proposed school partners

Results Continued

- MSP—Math and Science Partnership grant
 - Targeted Partnership
- Three schools committed to partnership
- Usability Testing Trends

The Difficulties

- The complexities and specifications of grant writing
- Finding a space for the lab
- Communication with university officials
- Attaining teacher feedback
- Availability of resources

In closing...

- Difficulties revolving around grants
 - Grant language
 - Correct information
 - Time constraints

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Questions...
