2013 Preflection-SURE III Report
A Collaborative Project Funded by HHMI
Summary for **California State University - Channel Islands**

The SURE survey project was undertaken in 2003 to provide support for the view that the educational experience of the students was enhanced by research, that undergraduate research experiences supported talented students interested in a science career, and that undergraduate research contributed to the retention of diverse students on the pathway to science careers. Two overall reports on the SURE survey are Lopatto, D. (2004). Survey of Undergraduate Research Experiences (SURE): First Findings. *Cell Biology Education* , 3, 270-277 and Lopatto, D. (2007). Undergraduate research experiences support science career decisions and active learning. *CBE – Life Sciences Education* , 6, 297-306.

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Institutional Information

This report includes data from your institution, found in the left column, and comparison data. The comparison data from "All Students" are based on all respondents to the survey. The comparison data from "Masters" are based on institutions classified as master's colleges and institutions by the Carnegie classification system.

	Your Students		***All Students****	
	Preflection	SURE III	Preflection	SURE III
N**	31	27	1600	2826

** The data from "all students" in this report was obtained from the Preflection and SURE III Surveys between Jan 1 - Sept 4, 2013.*

*** N represents the total number of respondents. Note that not every respondent answered each question in the survey, resulting in Ns smaller than the total (participation) SURE III N. In such instances, the total is represented by a lower case n.*

	Your Students	*All Students*	%#	**Sources of funding**
	0	1	0.0%	AHA (American Heart Association)
	0	50	2.1%	Alumni Scholarship/Grant
	0	1	0.0%	American Cancer Society
	0	7	0.3%	American Chemical Society
	0	0	0.0%	APS (American Physiological Society)
	0	5	0.2%	ASPET
	0	12	0.5%	Beckman Foundation
	0	20	0.8%	City of Hope
	2	363	15.1%	College or University funding
	0	0	0.0%	DNR
	0	3	0.1%	DOD (Department of Defense)
	1	95	4.0%	Faculty grant
	0	606	25.2%	HHMI
	0	73	3.0%	HHMI: EXROP
	0	20	0.8%	HHMI: EXROP Capstone
	0	2	0.1%	HHMI: INTROP
	0	13	0.5%	IGSP (Institute of Genome Sciences & Policy
	0	1	0.0%	MAA (Mathematical Association of America)
	0	11	0.5%	McNair Scholarship
	0	1	0.0%	MD Anderson
	0	8	0.3%	Mellon Grant
	0	9	0.4%	Merck-AAAS
	0	8	0.3%	NASA
	0	96	4.0%	NIH
	0	48	2.0%	NIH: INBRE
	0	375	15.6%	NSF
	0	24	1.0%	NSF:EPSCoR
	0	204	8.5%	NSF:REU
	0	11	0.5%	TIM (Theoretically Interesting Molecules)
	6	315	13.1%	Unknown
	0	20	0.8%	Workstudy
n	9	2402		*# Percentages in this column are for all students in the analysis*

Named Sources of Funding: Title V, US Dept of Education grant

Demographics

	Your Students		*All Students*			**Gender**
	Preflection	SURE III	Preflection	SURE III	%	
	12	10	678	1121	40.3%	Male
	19	17	900	1659	59.7%	Female
n	31	27	1578	2780		

	Your Students		*All Students*			**Ethnicity**
	Preflection	SURE III	Preflection	SURE III	%	
	0	0	0	0	0.0%	Alaskan Native
	0	0	7	10	0.4%	American Indian
	1	1	155	333	12.4%	Asian American
	0	0	158	248	9.3%	Black or African American
	0	0	9	17	0.6%	Filipino
	0	0	41	77	2.9%	Foreign National
	0	0	2	1	0.0%	Hawaiian
	19	16	164	269	10.0%	Hispanic/Latino
	0	0	3	3	0.1%	Pacific Islander
	6	5	835	1485	55.5%	White
	2	3	88	145	5.4%	Two or more races
	3	2	55	89	3.3%	Other
n	31	27	1517	2677		

	Your Students		*All Students*			**Current Status**
	Preflection	SURE III	Preflection	SURE III	%	
	0	0	179	137	4.9%	High School
	3	1	124	171	6.1%	First-year college student
	10	12	315	469	16.8%	Second-year college student
	12	8	501	863	30.9%	Third-year college student
	6	5	399	997	35.6%	Fourth-year college student
	0	0	37	90	3.2%	Graduate or medical student
	0	0	26	70	2.5%	Other
n	31	26	1581	2797		

Academic Information

	Your Students		*All Students*			**Academic Major**
	Preflection	SURE III	Preflection	SURE III	%	
	14	12	522	938	34.3%	Biology
	6	5	194	365	13.4%	Chemistry
	1	1	103	169	6.2%	Physics
	0	0	19	53	1.9%	Earth and Planetary Sciences
	2	1	69	142	5.2%	Mathematics
	0	0	50	99	3.6%	Computer Science
	3	3	149	288	10.5%	Biochemistry
	0	0	5	16	0.6%	Bioinformatics
	0	0	37	81	3.0%	Psychology
	1	0	44	140	5.1%	Neurobiology
	2	2	116	192	7.0%	Engineering
	0	0	6	13	0.5%	Education
	0	0	27	32	1.2%	Other: Social Science
	0	0	17	29	1.1%	Other: Humanities
	1	0	29	54	2.0%	Other: Natural Science
	1	1	54	84	3.1%	Other
	0	1	22	36	1.3%	Undecided
n	31	26	1463	2731		

	Your Students		*All Students*			**Prior experience**
	Preflection	SURE III	Preflection	SURE III	%	
	22	16	746	1160	41.9%	None
	3	3	176	330	11.9%	Academic Semester
	1	2	183	323	11.7%	Multiple Semesters
	1	2	149	280	10.1%	Summer
	1	1	145	294	10.6%	Academic Semester and Summer
	2	2	155	384	13.9%	Several Experiences
n	30	26	1554	2771		

	Your Students		*All Students*			**Postgraduate plans**
	Preflection	SURE III	Preflection	SURE III	%	
	8	8	315	497	18.6%	Ph.D. in biology field
	5	3	229	433	16.2%	Ph.D. in physical sciences
	3	0	45	90	3.4%	MA in life sciences
	1	3	87	148	5.5%	MA in physical sciences
	0	0	44	83	3.1%	MA or Ph.D. not in science
	6	4	263	435	16.3%	Medical degree
	2	2	214	342	12.8%	M.D./Ph.D.
	3	3	66	130	4.9%	Other health professions
	0	0	19	33	1.2%	Professional degree such as law
	1	1	25	32	1.2%	Teaching certificate
	0	0	18	34	1.3%	Peace Corps or similar
	1	1	138	313	11.7%	Work first then school
	0	0	40	79	3.0%	Science career with no additional school
	0	0	9	18	0.7%	Nonscience career with no additional school
n	30	25	1512	2667		

Preflection: Visualizing a Career Scientist

	Your Students	All Students	%	
	0	48	5.5%	No clue
	7	171	10.9%	Vague idea
	4	468	28.5%	Think I know, but not certain
	15	648	39.1%	Good idea
	5	255	16.0%	Clear understanding
n	31	1590		

Preflection: Life after graduation

Your Students

1 = Not important, 3 = Very important

Level of Importance

Not	***Moderate***	***Very***	N	
0	3	28	*31*	Continue education
0	7	24	*31*	Get work or financial independence
2	17	12	*31*	Public service/work for social change
5	9	17	*31*	Be with partner and start own family
4	11	16	*31*	Be free to travel
0	4	27	*31*	Manage health
8	7	16	*31*	Pursue spiritual values
8	20	3	*31*	Live near parents or siblings
24	4	3	*31*	Teach elementary or high school students
14	13	4	*31*	Become well-known scientist
9	12	10	*31*	Help others with physical or mental health
17	10	4	*31*	Return to home community

Preflection: Self evaluation of skills compared to peers.

The instructions are "use this scale to indicate your skills relative to your peers."

	Bottom 10%	Below average	Average	Above average	Top 10%	
Math skill						
	0.4%	**2.2%**	**17.0%**	**43.2%**	**37.2%**	All Students
N=29	0.0%	0.0%	31.0%	44.8%	24.1%	*Your students*
Writing skill						
	0.4%	**3.3%**	**23.4%**	**45.1%**	**27.7%**	All Students
N=28	0.0%	0.0%	17.9%	53.6%	28.6%	*Your students*
Public speaking skill						
	1.4%	**8.9%**	**32.9%**	**37.1%**	**19.7%**	All Students
N=29	3.4%	10.3%	37.9%	27.6%	20.7%	*Your students*
Social skill						
	1.0%	**6.9%**	**28.1%**	**39.2%**	**24.8%**	All Students
N=29	0.0%	3.4%	34.5%	48.3%	13.8%	*Your students*
Computer skill						
	0.9%	**7.9%**	**35.8%**	**41.5%**	**13.9%**	All Students
N=30	0.0%	6.7%	56.7%	30.0%	6.7%	*Your students*

SURE III Survey

	Your Students	Masters	All Students	%	Plans before project
	1	27	208	7.8%	I had not considered post-undergraduate education
	0	15	113	4.2%	I planned not to pursue education
	9	84	404	15.2%	Masters in science field
	8	106	979	36.7%	Ph.D. in science field
	0	16	67	2.5%	Masters in nonscience field
	0	10	37	1.4%	Ph.D. in nonscience field
	5	90	803	30.1%	Medical degree
	1	10	55	2.1%	Law or professional degree
n	24	358	2666		

	Your Students	Masters	All Students	%	Plans after project
	0	11	73	2.8%	I have not considered options for education
	1	10	93	3.6%	I now plan not to pursue education
	8	78	413	15.9%	Now plan Masters in science field
	10	147	1156	44.5%	Now plan Ph.D. in science field
	1	14	75	2.9%	Now plan Masters in nonscience field
	0	14	45	1.7%	Now plan Ph.D. in nonscience field
	6	70	685	26.4%	Medical degree
	0	7	57	2.2%	Law or professional degree
n	26	351	2597		

	Your Students	Masters	All Students	%	Describe work experience
	0	67	540	20.1%	I work individually
	6	138	898	33.5%	Undergrads have similar, independent projects
	0	10	279	10.4%	Graduates have similar, independent projects
	0	28	287	10.7%	Undergrad and grads have similar, independent projects
	20	107	486	18.1%	I work with undergraduates on a single project
	0	2	73	2.7%	I work with graduates on a single project
	1	11	117	4.4%	I work with both on a single project
n	27	363	2680		

Your Students	Masters	All Students	%	Role in project
25	228	1382	81.7%	We are equal partners
2	16	150	8.9%	I am a peer mentor
0	27	159	9.4%	There is a peer mentor not me

SURE III: Peer Mentoring Experience

Your Students	All Students Responding "yes"	Peer mentoring
0	49	My job explicitly included mentoring
0	113	Informal peer mentoring
1	100	I taught or trained another undergraduate
0	61	Offered coaching or social support
0	84	Role model
0	35	Responsible for the results of a group of students
0	44	I was given assignments to teach other students
0	54	I was alone with other students as their teacher

Your Students	All Students Responding "yes"	Preparation
0	55	I was assigned to be a peer mentor
1	25	I had training
1	10	I attended a seminar on how to mentor
0	12	Mentoring was part of my performance evaluation

Your Students	All Students Responding "yes"	Experience as a mentor
0	0	Very negative
0	0	Moderately negative
0	13	Neutral
1	41	Moderately positive
0	83	Very positive

Your Students	All Students Responding "yes"	Would you mentor in the future?
1	129	Yes
0	4	No

Your Students	All Students	Ratings of mentoring experience (1 to 5 scale) 1 = strongly disagree, 5 = strongly agree
5.00	4.41	I enjoyed the responsibility
4.00	4.34	I enjoyed teaching
5.00	4.29	I gained self-confidence as a researcher
2.00	2.35	I felt that my supervisor did not prepare me
5.00	3.91	My oral communication skills improved
1.00	2.67	I was given responsibility beyond my experience
3.00	3.08	I felt pressure to make sure the others did well
4.00	4.14	I felt responsibility for the research
2.00	2.26	I was on my own too often
4.00	4.16	My role deepened my understanding of the research project
4.00	4.01	My role increased my motivation to work on research
4.00	4.13	I did well as a peer mentor

Means are used to represent the data

SURE III: Peer Mentor Evaluation

Your Students	All Students	N	Evaluating a peer mentor 1 = strongly disagree, 5 = strongly agree
n.a.	4.48	*149*	My peer mentor helped me appreciate the significance of the research
n.a.	4.43	*148*	My peer mentor understood my concerns
n.a.	3.63	*137*	I asked the mentor questions I was afraid to ask my supervisor
n.a.	1.68	*150*	I would have learned more if there had been no mentor
n.a.	2.08	*147*	I feel the use of mentors enabled faculty and graduate mentors to ignore me
n.a.	4.51	*146*	My peer mentor had a positive impact on my research experience

Means are used to represent the data

Peer Mentoring Comments

I was not formally assigned the role of peer mentor, but felt a bit obligated to assume this role because I have been doing this research for a while and this was these students' first time doing research of this nature.

SURE III: Summer/Academic Year

Your Students	All Students	Summer/Academic Year (1 to 5 scale) 1 = Strongly disagree, 5 = Strongly agree
n≤27	**n≤2709**	
2.38	2.10	Summer research experiences are more stressful than academic year experiences
2.46	2.70	Academic year experiences take less time than summer experiences
2.22	2.15	The college or university should never interfere with a student's summer
3.00	3.40	During the academic year it was difficult to balance research and coursework
3.00	2.76	During the academic year it was difficult to get sufficient time with my mentor
3.00	3.12	During the academic year it was easy to plan and schedule work with my research team
3.64	3.76	Overall, research is more interesting than course work
2.71	2.76	I learned more from my courses than from my research experiences

Means are used to represent the data

SURE III: Summer/Academic Year Comments

They were both very similar. No major differences.

You learn in both environments. In an academic year you have expectations and have a syllabus that tells you what you will learn. You never know what you will learn during summer research.

summer research allows me to become completely submerged in research without being distracted by school work or jobs etc.

It is difficult to make time for research during the academic year

First, summer research is more fast paced as it has to be completed in a few weeks. There is less room for error and mistakes in summer research than in academic year research. The similarities they share are the use of techniques to gather data

I like how summer research is an opportunity to apply what we learned from academic course work. It can sometimes be a challenge, but I find it more worthwhile for it on a project, since we are getting experience and developing techniques to solve problems and/or answer a question we are interested in researching.

they both need you to know lab skillsthey are different because we dont take tests

I think academic year research would be harder because not only do you do research while taking classes, you have to balance your personal life and maybe even your work life too. Summer provides the perfect time to research with less interruptions and more time to focus on the research at hand

I learned things that I would have definitely not learned in class

SURE III: Benefits

Your Students	Masters	All Students	SD	**21 items about learning gains**
n≤27	**n≤365**	**n≤2762**		**1 = no gain or very small, 5 = very large gain**
3.80	3.39	3.30	1.12	Clarification of a career path
4.04	3.79	3.69	0.97	Skill in interpretation of results
4.04	3.88	3.83	0.95	Tolerance for obstacles faced in the research process
3.93	3.83	3.78	0.95	Readiness for more demanding research
3.85	3.74	3.62	0.98	Understanding how knowledge is constructed
3.81	3.99	3.92	0.93	Understanding the research process
3.96	3.68	3.61	0.99	Ability to integrate theory and practice
4.19	3.85	3.82	0.95	Understanding how scientists work on real problems
3.93	3.57	3.52	1.16	Understanding that scientific assertions require supporting evidence
4.11	3.85	3.72	1.01	Ability to analyze data and other information
4.04	3.59	3.51	1.09	Understanding science
3.67	3.40	3.23	1.23	Learning ethical conduct
3.32	3.76	3.80	1.22	Learning laboratory techniques
3.58	3.57	3.53	1.14	Ability to read and understand primary literature
3.74	3.45	3.37	1.25	Skill in how to give an effective oral presentation
3.64	3.27	3.16	1.22	Skill in science writing
4.07	3.62	3.45	1.17	Self-confidence
3.81	3.59	3.51	1.07	Understanding how scientists think
3.42	3.62	3.66	1.11	Learning to work independently
3.96	3.57	3.58	1.11	Becoming part of a learning community
3.68	3.32	3.16	1.26	Confidence in my potential as a teacher

Means are used to represent the data

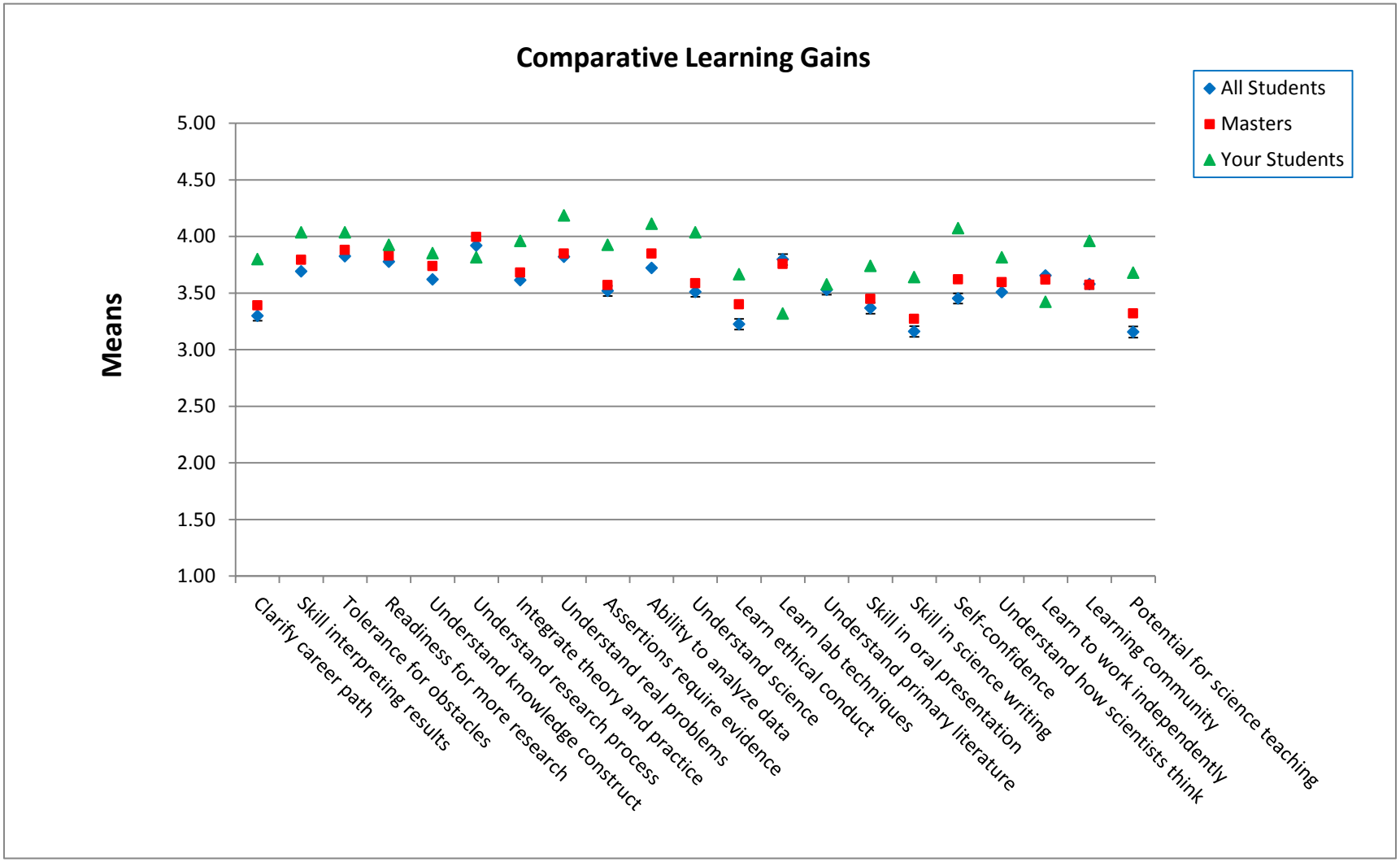

Figure 1. Comparative means on the 21 learning gain items. The mean learning gains from "Your Students" data are depicted as green triangles. For comparison, the "All Students" means (blue diamonds) represent the n≤2762 responses from the SURE III from January 1 through September 4, 2013 and the means from all student data from "Masters" are depicted as red squares. The vertical lines in the "All Students" means depict plus or minus two standard errors.

SURE III: Overall Experience

	Your Students	Masters	All Students	%	Expectations
	0	6	64	2.3%	The experience was worse than I expected
	0	21	237	8.5%	A little worse than I expected
	1	86	676	24.4%	Met my expectations
	6	102	750	27.0%	A little better than I expected
	19	150	1048	37.8%	Much better than I expected
n	26	365	2775		

	Your Students	Masters	All Students	%	Type of Supervisor
	18	305	1742	62.8%	College or university professor
	0	7	242	8.7%	Post-doctoral student
	1	15	354	12.8%	Graduate student
	7	33	369	13.3%	Professional researcher or practitioner
	0	7	68	2.5%	Other
n	26	367	2775		

	Your Students	Masters	All Students	%	Primary Supervisor
	1	4	47	1.7%	Was not a good teacher and mentor
	0	10	86	3.1%	Was below average
	1	38	296	10.7%	Was about average
	2	95	808	29.1%	Was above average
	23	219	1536	55.4%	Was an outstanding teacher and mentor
n	27	366	2773		

	Your Students	Masters	All Students	%	Evaluation of working with other students
	0	7	41	1.8%	Worst part of the experience
	1	21	138	6.2%	Moderately detracted from my experience
	2	29	271	12.2%	Did not affect my experience
	8	109	877	39.5%	Moderately enhanced my experience
	15	151	896	40.3%	One of the best parts of the experience
n	26	317	2223		

	Your Students	Masters	All Students	%	Evaluation of research experience
	0	3	33	1.2%	Very dissatisfied
	0	8	86	3.1%	Mildly dissatisfied
	0	14	127	4.6%	Neutral
	0	57	585	21.1%	Mildly satisfied
	26	284	1941	70.0%	Very satisfied
n	26	366	2772		

	Your Students	Masters	All Students	%	Will you choose another research experience?
	0	7	53	2.1%	I will not
	0	21	153	6.1%	I am unlikely to
	4	57	516	20.7%	I am likely to
	23	256	1771	71.0%	I am very likely to
n	27	341	2493		

SURE III: Program Components
1 = very negative, 5 = very positive

	1	2	3	4	5	
	Preparing an application or proposal					
	0.8%	**3.3%**	**29.3%**	**38.3%**	**28.3%**	All Students
N=19	0.0%	0.0%	31.6%	47.4%	21.1%	
	Seminars at which scientists discuss research					
	0.8%	**3.4%**	**17.2%**	**37.7%**	**40.8%**	All Students
N=22	0.0%	4.5%	0.0%	59.1%	36.4%	
	Seminars on safety					
	2.1%	**7.4%**	**37.4%**	**31.5%**	**21.6%**	All Students
N=18	5.6%	0.0%	16.7%	38.9%	38.9%	
	Instruction/discussion of ethics					
	1.1%	**5.2%**	**32.2%**	**35.7%**	**25.8%**	All Students
N=16	0.0%	0.0%	25.0%	56.3%	18.8%	
	A program of social activities					
	1.5%	**4.8%**	**26.1%**	**33.9%**	**33.8%**	All Students
N=20	0.0%	5.0%	25.0%	40.0%	30.0%	
	On-campus housing					
	6.0%	**7.4%**	**20.4%**	**24.6%**	**41.5%**	All Students
N=12	16.7%	0.0%	50.0%	16.7%	16.7%	
	On-campus meal plan					
	13.4%	**10.4%**	**28.3%**	**20.7%**	**27.2%**	All Students
N=14	14.3%	0.0%	50.0%	14.3%	21.4%	
	Final presentation of work					
	0.2%	**1.3%**	**12.1%**	**33.1%**	**53.2%**	All Students
N=26	0.0%	0.0%	3.8%	19.2%	76.9%	

Overall Comments

Great overall experience. This is my fourth year doing summer research and Ive enjoyed it every year. I learned so much in terms of both gathering and processing data to statistically analyzing it. These skills are extremely important for real world applications.

Project ACCESO.yI really enjoyed this experience a lot!yBefore I attended this summer research institute, I did not know what to expect nor what I would receive from it. When I started it, I was sort of overwhelmed but I immediately went for it and got the hang of what we were researching. This experience has to be the best experience of my adult life so far. My mentor, Dr. Rasnow, was very insightful in such a wide variety of topics of life and education. I loved going to JPL. I liked the fact that I was not placed in my major's research. I am a biology major but I was placed in a physics research group. This helped me decide exactly what I wanted to study. I will no be pursuing a biology degree with a minor in physics.yI would like to thank everyone who made this research institute possible. I loved it.yAll the mentors I spoke to were very nice and helpful and knowledgeable. All the other research assistants were super easy going and awesome. I made great friends.yI would like to suggest, for future summer institutes, that all research groups, students and instructors, have a chance to interact more as I feel that would make it a much closer experience and it will make networking easier.yThanks again for this opportunity. I thoroughly enjoyed it and hope to maybe get the chance to do it again int he future.y Regards .

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