

Camp Reach 2008 Annual Report Evaluation Addendum*

Table of Contents

Summative Evaluation

Effect of Program on Campers	1
Parent and Teacher Perspectives of Effects on Campers.....	6
Staff Development Goals	7
Effects of Camp Reach on Families.....	10

Formative Evaluation

Discovery Workshops and Other Academic Activities	11
Design Projects	13
Evening/Recreational Activities	16
Measures of Overall Satisfaction	18
Campers	18
Parents.....	21
Staff.....	24
Staff Training	26
Parents' Feedback on Pre-Camp Communications, Opening and Closing Days	27

EFFECT OF PROGRAM ON CAMPERS

Comparison of Pre-Program vs. End-of-Program Camper Questionnaires (N=29)			
	Mean		p^{\wedge}
	Pre	Post	
<i>Interest in and Knowledge of Engineering</i>			
I find engineering and technology to be interesting.*	3.31	3.55	.165
I have a good understanding of what engineering is.*	2.86	3.50	.002
<i>Motivation toward Education</i>			
I am looking forward to math and science courses in middle school and high school.*	3.38	3.43	.787
I have given a lot of thought to my future career.*	3.03	3.07	.869
<i>Confidence, Efficacy, and Self-Esteem</i>			
I could be an engineer if I wanted to.*	2.97	3.24	.133
Skills rating [#]	73.6	77.2	.002
Self-esteem score [†]	35.8	36.6	.191
<p>[^] Two-tailed values, determined from paired-samples t-tests. The value p is the probability that the observed difference between the means is due to chance alone. In social science research, p values less than 0.05 (highlighted in yellow above) are generally viewed to be statistically significant.</p> <p>* Responses were given on a scale of Strongly disagree = 0; Disagree = 1; Neutral = 2; Agree = 3; Strongly agree = 4.</p> <p>[#] Participants rated their “comfort and confidence level” for 22 skills and abilities, on a 4-point scale from 1 = Poor; 2 = Fair; 3 = Good; 4 = Excellent. The skills rating is the sum of these 22 responses, for a maximum possible score of 88.</p> <p>[†] Participants were asked “How do you feel about yourself” for 11 paired descriptors such as “Smart—Not Smart”, “Weak—Powerful”, and “Indecisive—Decisive.” Their responses were on a 5-point scale between those extremes, from the less desirable to the more desirable extreme: 0 = Very (less desirable, e.g. Not Smart); 1 = Only a bit; 2 = In between; 3 = Only a bit (more desirable, e.g. Smart); 4 = Very. Maximum possible score is 44.</p>			

Campers’ Answers to “Describe Engineering in Your Own Words”		
	Opening Day of Camp Reach	Closing Day of Camp Reach
1	using math and science to help make things easier	using creativity, math and science to make things easier for people
2	I don't know	creating and making new things that relate to everyday life
3	designing solutions to problems	engineering is using gathered information to design or redesign things
4		
5	building and designing	
6	designing technology and discovering how things work	building things, studying different things with math and science and learning how things work
7	creative able to build according to directions	creativity building things, overcoming obstacles that customers face
8	building and putting stuff together	building designing and taking apart stuff

9		it's the way things work
10	making/creating things	using math and science to build and create things
11	when you make plans to construct something which helps people in their everyday lives such as an invention	to create something that will help people in doing everyday things making life easier
12		people who work with science
13	designing something or anything	designing things that will help the future or make peoples' lives better
14	designing, building, and adding onto objects	
15	planning and building structures	the before middle and end process of thinking and conducting a making of or researching of doing something.
16	studying how things are made and how things work	is when you study things of how they were made and work
17	a way of figuring out how some things work using math, science, physics and algebra	figuring something out involving math and science. Designing and building things using those subject and the design process
18	understanding how the world works	it's the way things work
19	building things, working with numbers, using your hands	working hard, a lot of math and science and usually working as a team
20	building buildings, planning and things of that nature	building and creating it also mean designing
21	the ability to build objects and to understand how they work	designing a plan for a building or an item
22	understanding how things work, learning how to build things, and ideas that can help other people	understanding how things work, inventing new products and helping people live a better tomorrow
23	designs, builds, creates things	designing, building, creating test and making things
24		
25	I don't really know.	there are many different fields of science
26	designing and improving on earlier designs	designing different things that help out different things
27	making new things and improving old things	making things, fixing things, protecting things, and taking apart things
28	science	using science and math skills to create for a specific need
29	constructing, putting together, and inventing things	someone who can build redesign or construct something

Wilcoxon Signed Ranks Test* of Engineering Descriptions		
	Number	Signif.
Pre: Did not mention engineering as a helping profession Post: Mentioned engineering as a helping profession (<i>Positive Change</i>)	2	.157
Pre: Mentioned engineering as a helping profession Post: Did not mention engineering as a helping profession (<i>Negative Change</i>)	0	
<i>No change</i> : mentioned helping both Pre and Post	3	
<i>No change</i> : did not mention helping in either Pre or Post	18	
Pre: Did not mention engineers as problem solvers Post: Mentioned engineers as problem solvers (<i>Positive Change</i>)	0	.317

Pre: Mentioned engineers as problem solvers Post: Did not mention engineers as problem solvers (<i>Negative Change</i>)	1	
No change: did not mention problem solving in either Pre or Post	22	
Pre: Did not mention creating / building / designing Post: Mentioned creating / building / designing (<i>Positive Change</i>)	4	.414
Pre: Mentioned creating / building / designing Post: Did not mention creating / building / designing (<i>Negative Change</i>)	2	
No change: mentioned creating / building / designing both Pre and Post	14	
No change: did not mention creating / building / designing in either Pre or Post	3	
* This test makes pairwise comparisons of two distributions to determine if they differ significantly from each other. There were no statistically significant changes in participants' descriptions of engineering. Far fewer participants mentioned "problem solving" compared to previous years of the program.		

Has Camp Reach changed your opinions about science and engineering? If so, how?

- It has made me realize that there is many different kinds and that they all can be really fun!
- yes, I can now understand what engineering is
- it hasn't changed my opinions, just deepened my understanding
- not much
- I learned that I like science and building and creating things more than before.
- yes because I never knew how much work it takes to make things
- yes, I didn't think it was this fun!
- yes, because they made science much more fun than it looks
- I still find science interesting and a fun field to study.
- Now I really want to become an engineer because I can design and create new things/
- I think that after Camp Reach I will do better in science because I learned a lot more.
- I didn't know engineering was so vast and could be so much fun! I still love science@
- no, it hasn't
- it's made my mind more open to engineering
- really has changed my opinion about science because I wanted to be a vet and it requires math and science
- it has about different forms of engineering and career paths in the field. The trips and design projects made me think the most about it.
- yes, because I first thought that science and engineering was a lot of math and numbers, but now I know it can be lots of fun
- I always thought science was boring! Now, I want to take extra science classes!
- Camp Reach has changed my opinions. Before I was interested, but not much. Now, I'm really interested! Reach has shown me different fields of science and engineering that I really want to do!
- now I am thinking about new careers that involve engineering for when I grow up
- it made me realize that there are a lot of different kinds, so you can usually mix many of your interests.
- it didn't
- it has taught me that engineering is more than just science

- I understand more and how it's more than it seems. Also how much it can affect people and how many jobs affect engineering
- helped me get more into forensic science and general science. It showed me that science is a puzzle that is worth figuring out.
- I didn't know there were that many types of engineering
- now I see more of what engineering is

Has Camp Reach caused you to think differently about the type of career you might be interested in? If so, how?

- yes it has. It's made me want to come up with sources of energy that are better for the environment.
- sort of. I wanted to be a doctor but now I might want to be a forensic scientist
- no difference
- this was a lot of fun
- nope
- yes and I realized that I want a career revolving more around science and computers
- yes I might want to be a detective or an engineer and before I wanted to be a dentist and a chef.
- yes I think I might want to be an engineer!
- no because I knew all my life I wanted to be a fashion designer but it made me more interested in science.
- I now want to maybe be a middle school teacher to tell other girls about Camp Reach and teach them about engineering.
- I think I want to become an audio engineer or a material scientist. I wanted to become a material scientist because that way you could use different materials to build different things.
- not really, I still want to be the same thing
- Well, I've been thinking I could combine engineering and astronomy.
- no, I still want to do the same things when I grow up.
- it made me realize that engineering could be a good career
- no, not really
- the Bose trip made me see that there are options that involve both engineering and music. I would love to look into it more.
- yes, because first I only wanted to be a vet, but after the forensic science and robotics labs I also consider being a detective or a robotics engineer
- I still want to be some sort of scientist
- Before camp I wanted to be a multimedia artist, now I also want to be an engineer. Reach has shown me different things that might have an impact on my life.
- camp showed me many types of engineering which made me think more about my future.
- It did change what I'm thinking about doing when I grow up.
- no
- no
- it has gotten me more interested in an engineering field
- teaching and engineering now that I know how much I can do!
- it opened my eyes to chemical and mechanical engineering, but hasn't changed my career option
- no
- it helped me to know what sciences I need for my career

Effect of Program on Campers: Parent and Teacher Perspectives

Parents' Assessment of Daughters' Attitudes and Abilities* (N=19)			
	Mean**		p^{\wedge}
	Pre	Post	
Self-confidence	3.78	4.22	.09
Interest in engineering, science & technology	3.90	4.21	.08
Motivation toward education, learning, and achievement	4.68	4.58	.43
Ability to work with others	4.16	4.21	.67
Interpersonal communication skills	4.06	4.11	.79
<p>* Parents completed these assessments on opening day and in a questionnaire completed in November (approximately 3 months after the camp.)</p> <p>** Parents rated each characteristic on a scale of 1= Very low; 2= Somewhat low; 3= Average; 4= Moderately high; 5= Very high.</p> <p>\wedge Determined from paired-samples t-tests. The value p is the probability that the observed difference between the means is due to chance alone. In social science research, p values of 0.05 or less are generally viewed to be statistically significant, and values less than 0.10 are sometimes accepted as "marginally significant."</p>			

Please comment on any effects of the program on your daughter, including both positive and negative:

- Camp Reach was a watershed experience for [Name]. It gave her a better understanding of how science and math can be used through engineering applications to improve the world around her. And it boosted her confidence enormously!
- I feel it helped keep her mind off her dad's struggle with cancer and helped with self esteem during a difficult age
- This program brought [Name] out of her shell. It gave her more confidence.
- Positive: She managed 2 weeks away from home. Negative: When asked if she would consider doing it again the answer was an emphatic no.
- Has had some limited contact with fellow campers
- One of her first experiences being on her own living in a dorm gave her confidence and independence much sooner than normal.
- [Name] had the opportunity to interact with teachers and peers that was unique in that a one-on-one basis was helpful.
- She could not stop talking about what she did there. She would describe to everyone, in every detailed moment of when she was there, what it was like and how much she learned.
- She is much more self confident. She advocates for herself more. She has a stronger appreciation of the many fields of engineering
- [Name] has made long lasting friendships, one that resulted in the adoption of a bunny. The sense of independence has prompted many conversations around trust.
- My husband and I are engineers and [Name] has always thought we were complete geeks and engineering was the last career she'd choose. I think she's a lot more neutral about it now. She was particularly impressed with a woman engineer at Bose-- like she could imagine doing that.
- More at ease with being on her own.
- She has always done great in school but meeting other teens and staff gave her insight into how working hard in school and hard work will get you to your goals.(Very positive role models in your program.) Gave her a sense of college and dorm life is also very fun. She loved night activities.
- She felt accomplished to have participated in the program and to have learned what she learned.

- [Name] couldn't wait to tell her friends and encourage them to apply in upcoming programs. She told her 6th grade science/math teacher all about it. No negative effects other than missing new found friends.
- This experience really boosted her self-confidence and independence. And she's actually talking more about science and engineering!
- [Name] has been taking her studies much more seriously. So far attendance is perfect and her average is 92%! I'm quite pleased.
- She loved the experience of being away from home like a college dorm experience at age 12.

Teachers' Observations of Campers' Attitudes and Abilities *				
	Initial Assessment**		Change during Program***	
	Mean	Std. Dev.	Mean	Std. Dev.
Interest in engineering, science & technology	3.53	0.90	3.93	0.59
Motivation toward education, learning, and achievement	3.40	0.81	3.89	0.79
Ability to work with others	3.30	0.84	3.69	0.81
Interpersonal communication skills	3.37	0.76	3.75	0.65
Self-confidence	3.33	0.88	3.93	0.80

* Each camper was assessed by the Middle School Teacher who was facilitating the work of her design project team.

** The initial assessment was completed during the first several days of the program, on a scale of 1= Well below average; 2= Below average; 3= Average; 4= Above average; 5= Well above average

*** The assessment of change was made on the final day of the program, on a scale of 1= Decreased during program; 2= No improvement; 3= Small degree of improvement; 4= Moderate degree of improvement; 5= High degree of improvement

STAFF DEVELOPMENT GOALS

Effects of the Camp Reach Program on Staff Members		
	Mean	Std. Dev.
As a result of Camp Reach 2008 I have a better understanding of engineering. (High School Teaching Assistants and Middle School Teachers)	3.25	0.65
I will be able to adapt design project or workshop activities or approaches in my own teaching (Middle School Teachers Only)	3.33	0.58
I have ideas from Camp Reach that I will be able to share with colleagues who can apply them in their teaching. (Middle School Teachers Only)	3.33	0.58

* Staff rated their level of agreement with each of these statements on a scale from 0 = Strongly Disagree; 1 = Disagree; 2 = Neutral; 3 = Agree; 4 = Strongly Agree.

Comments from Middle School Teachers

What was the most valuable aspect of the program for you personally?

- Learning about the new advances in engineering and more about how engineers really think/are.

- I am over-the-moon thrilled that my daughter has not only chosen to pursue an engineering degree but she has chosen to do so at WPI. I was wary of her going to an engineering school believing she would not receive a well-rounded education but having experienced WPI's commitment to outreach and the overall climate of the campus this feeling is gone.
- In two weeks I observed ten individual girls become a team. As they stood up presenting their project, they shared what they had learned. Each girl showed a growth with her experience at Camp Reach.

Describe how you will use any of the experiences you gained during Reach in your teaching next year.

- In my new position as Educational Specialist and Advocate for Homeless Children I will design workshops on science. The director said the kids have been asking for more science activities.
- Camp Reach demonstrated how students learn best from one another. Therefore I will be teaching less and facilitating more.
- I can use the engineering design process in a variety of activities, whether the activity is strictly math or a team related problem. The organization and implementation of the workshops can be helpful in other similar workshops. I particularly liked the wacky shoes workshop. Learning how something is made and then creating your own is both educational and fun.

Please describe how your knowledge or attitude about engineering changed, if at all, as the result of the Camp Reach Program.

- I see the correlation between the engineer design process and the scientific method. I think more emphasis should be made to all as to how similar they are. I think this will benefit all.
- I never really appreciated all the types of engineering required to produce anything. I also appreciate the role that redesign, teamwork and communication plays in engineering.
- I have learned a great deal about engineers and the engineering design process. All the steps from gathering information to interpersonal communication are important to succeed in solving a problem.

Comments from High School Teaching Assistants

What was the most valuable aspect(s) of the program for you personally? Stated another way, has being a Camp Reach TA affected your personal development? If so, how?

- I learned a lot about this adolescent age and how life pressures affect academia and the like. I was often shocked to hear the girls say they had boyfriends or how self conscious some of them were. It really upset me to see this so I feel like I have in return become more confident and very proud of my accomplishments and interests.
- I sure hope so! I am glad I was able to have this experience again. Any difficulties I had last year with finding the balanced relationship with campers between friend and someone they respect and look up to I think was easier this time. I let the girls get to know me and I got to know them and I have a special relationship with all of them even if they were someone I didn't spend as much time with.
- It reminded me how much I love to work with other people. I loved helping the girls solve problems that I also had trouble with in camp.
- For the Camper: The most valuable aspect for me, besides learning engineering, is getting out of your own home and meeting kids who enjoy similar activities and having no parents to influence yourself. For Me: It has taught me, even more so, how to help kids learn and not overshadow them or not help them enough.
- It has given me a chance to increase my leadership skills. Also it has gotten me to actually talk not only in simple social situations but to feel more at ease talking to an audience.
- It really helped me develop leadership qualities.
- It has made me realize the role of elders. I'm used to being the younger girl and it was great to be able to aid them and be in "coaching" shoes.

- Yes, it has helped me learn how to be in a simultaneously professional and casual environment and take on a leadership position.
- The most valuable part for me had to be just being with the campers. It's really nice to be looked up to as a role model. Just making me want to be a better person.

Please describe how your knowledge or attitude about engineering has changed, if at all, as a result of the Camp Reach program:

- It has only further developed my passion for learning and my interests in engineering. I liked the Sustainable Energy labs a lot since those weren't around in '04.
- Well I'm sure my dad would like it if I said I wanted to be an engineer now. Together, this year and last, have helped me get a better understanding of engineering but I still would prefer to do forensics which I guess it's a good thing that at least that workshop rubbed off on me.
- I realized again how much you can do with engineering because the degree is so flexible.
- My knowledge has increased because I did not know how to make a sensor before this camp. My attitude has remained the same. Engineering is second on my list of careers that I have been filtering through for a couple years
- Some of the workshops have changed since I was here as a camper so I have learned from this program.
- I broadened my horizons about different types of engineering and associated careers.
- I still love engineering!
- The things campers did were different than the activities I did while I was a camper so I saw a broader area of engineering that were very interesting.
- I had an idea what engineering was about but at this camp, I got to learn about kinds that I have never learned about before or done anything on it.

Has this program caused you to think differently about the type of career you might be interested in? If so, how?

- I have truly realized just how helpful engineers can be and I can only hope that I've taught the girls here the same. I have always wanted to do something medical and recently I have wanted to pursue biomedical engineering but I realize that I can change my mind and still be successful.
- I can't say it really changed much. Maybe it strengthened my interest in forensics but that is about it.
- I didn't know what I wanted to do with my life and I still don't know!
- No (3)
- I have been pulled in many directions when it comes to my career interests which include early childhood education, forensic psychology and forensics. So, no the program hasn't because in ways it all ties into my careers interest.
- Yes, I definitely might go into engineering!
- I'm still not sure what kind of career I'm interested in, I've still got a year to decide but I'm interested in the sciences so hopefully something related to them.

EFFECTS OF CAMP REACH ON FAMILIES

Effect of Program on Parents' Understanding of Engineering (N=19*)			
	Mean		p^{\wedge}
	Pre	Post	
I/we have a good understanding of engineering and engineering careers.**	4.00	4.05	.80
<p>* 19 out of 30 parents responded to the "post" survey mailed twice in October-November 2008.</p> <p>** Parents were asked to indicate their level of agreement on a scale of 1= Strongly disagree; 2= Somewhat disagree; 3= Neutral; 4= Agree; 5= Strongly agree.</p> <p>\wedge Determined from paired-samples t-tests. The value p is the probability that the observed difference between the means is due to chance alone. In social science research, p values of 0.05 or less are generally viewed to be statistically significant.</p>			

Describe any ways the program influenced you or other family members:

- As anxious as we were about [Name's] capacity to handle two weeks on her own, the program certainly proved that she could manage quite nicely without us and it showed what she was capable of working on the projects with others.
- We all felt very proud of what [Name] accomplished
- Since [Name] had such a great experience at WPI and she does well in math, science and technology, we're hoping she'll go down this path of engineering.
- [Name] was excited to implement her project at Hope Lodge. We hope that we will be able to see the final implementation of the project.
- As much as we missed her, we knew the experience was a good one.
- It opened up the field of engineering to us. Although my uncle is a marine engineer and has a hugely successful career, we were introduced to the wide variety that is out there.
- I will continue to pursue programs at WPI for [Name] (camps, Tech Girls).
- We were all very proud!!
- My 9 year old son wants to go to WPI. What a lovely school-- small, smart, and caring.
- Long ties for our family to Camp Reach...
- I was able to see that her shyness is not going to hold her back from interacting well socially in her future. She has wonderful memories and is looking forward to other camps and would like to be a counselor for similar programs someday.
- At the closing, I felt so proud to see what [Name] had been a part of. I am grateful for the opportunity.
- [Name]'s younger sister plans to apply when she is old enough.
- I was insanely jealous!
- I think that the fact that this program is geared for girls by women who know and are actually doing things in the world of engineering is fantastic. The fact that the outside community is accepting and involved gives me hope!
- Both my daughters have attended your program and I have noticed a much greater interest especially towards math in school. For [Name], she has more self confidence and doesn't need her friends to try something before she will try it.

FORMATIVE EVALUATION

DISCOVERY WORKSHOPS AND OTHER ACADEMIC ACTIVITIES

Ratings of Discovery Workshops by Campers and Staff Members*								
<i>Workshops are listed in order of degree of campers' enjoyment.</i>								
<i>Those most highly rated for degree of learning are indicated by gray shading.</i>								
	CAMPERS (N=29)				MSTs and TAs** (N=12)			
	Degree of Enjoyment		Degree of Learning		Degree of Enjoyment		Degree of Learning	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Robotics	3.79	0.50	3.68	0.67	3.82	0.40	3.83	0.39
Forensics	3.72	0.59	3.76	0.58	3.60	0.52	3.55	0.52
Electrical Engineering: Dance Pad Mania	3.63	0.61	3.60	0.77	3.42	0.79	3.58	0.51
Wacky Shoes	3.63	0.56	3.30	0.70	3.83	0.39	3.42	0.67
Bose Field Trip	3.57	0.50	3.53	0.78	2.75	0.75	3.25	0.45
Sandcastle Building	3.57	0.79	3.18	0.90	3.40	0.52	2.90	0.57
Rehabilitation Engineering	3.40	0.72	3.62	0.62	3.55	0.52	3.50	0.52
UnBirthday Party Design	3.40	0.67	2.47	0.82	3.42	0.51	3.08	0.90
Salt Marsh Scavenger Hunt	3.37	0.84	3.00	0.86	2.80	0.92	2.70	0.48
Environmental Engineering: Snack Attack	3.17	0.71	3.10	0.82	3.42	0.67	3.17	0.83
Sustainable Energy	3.14	0.85	3.43	0.74	3.36	0.67	3.75	0.45
Civil Engineering: Wild Weather	3.07	0.87	3.30	0.75	3.17	0.72	3.33	0.65
Sunscreen Testing	2.82	0.82	3.29	0.94	2.90	0.32	3.30	0.48
Teambuilding: Island to Island	2.30	0.99	2.33	1.06	2.42	0.90	2.25	0.97

* Participants rated their level of agreement with the statements “I enjoyed this workshop or activity” and “I learned a lot from this workshop or activity,” on a scale from 0 = Strongly Disagree; 1 = Disagree; 2 = Neutral; 3 = Agree; 4 = Strongly Agree.

** Middle School Teachers (MSTs) and high school Teaching Assistants (TAs) were asked to rate their observations of campers' enjoyment and learning.

Historical Progression in Workshop Ratings (Campers Only)*

	2004	2005	2006	2007	2008
Mean Enjoyment Rating (All Workshops)	3.34	3.48	3.35	3.38	3.33
Maximum Enjoyment Rating for a Workshop	3.87	3.96	3.93	3.79	3.79
Minimum Enjoyment Rating for a Workshop	2.76	2.82	2.37	2.74	2.30
Mean Learning Rating (All Workshops)	3.28	3.44	3.29	3.29	3.25
Maximum Learning Rating for a Workshop	3.80	3.86	3.73	3.76	3.76
Minimum Learning Rating for a Workshop	2.67	2.75	2.50	2.83	2.33

* Five workshops were new in 2007, and one workshop was significantly revamped since 2006. Four workshops/activities were new in 2008.

Suggestions from Middle School Teachers and/or TAs:

General

- MST: I noticed that in some workshops some campers did not follow their design and/or would not re-design a faulty product even when the instructions called for it. It may be beneficial to include a design approval process which forces campers to consider and include basic engineering concepts just taught. But then again, there may not be enough time to implement this.

Team Building (Island to Island)

- TA: Teambuilding seems like some thought it was too easy. It was more of a race than them trying to work together.
- TA: I got a feeling from the girls that they had done this type of activity before. It didn't seem like they enjoyed it very much.
- TA: I don't think the teambuilding activity was very good. Everyone treated it as a race. Also, the "cave" caused many problems. People got hurt (bumped heads, kicked, etc.) I think it would have been better with 2 "caves" and one "whirlpool", rather than the other way around.
- TA: Island to Island was not the best teambuilding activity. The overall effect created a loud competitive, rushed atmosphere more than one of teamwork.
- TA: The island to island game could be improved on. It did not seem like many of the girls enjoyed it, but maybe it could be improved upon by making 3 tables (because it was disorganized) and have 1 whirlpool for every team to go through!

Electrical Engineering: Dance Pad Mania

- TA: Dance pad mania seemed very chaotic - too many helpers all in the same place - needed better explanation at first many girls were sitting confused for 10 minutes because they simply didn't know how to create a basic circuit.
- TA: In EE some girls still had trouble designing a switch, even though they understood the concepts.

Bose Field Trip

- TA: Personally, I enjoyed the trip that I did when I was here in 2004
- TA: The field trip to Bose was not engaging enough for campers.
- MST: Not all campers could see or hear at each station. I wish there was more time for questions at each station (I was cut off when asking questions) I wish the campers were allowed to go to the surround sound room.

- MST: What a wonderful experience to have such talented women engineers speaking to the campers. Unfortunately, many students had difficulty hearing the speakers. The campers liked receiving samples of the materials used/made at Bose. The stations need to be evaluated. Perhaps each station needs to be longer than 10 minutes.

Civil Engineering: Wild Weather

- TA: In Civil Engineering was much more exciting for the campers than just putting weights onto spaghetti. By the end some didn't care about the condition of their bridge and weren't eager to redesign if their first failed.
- TA: Seemed like some of the campers really liked it and other didn't.

Based on these results, consider the following changes in WORKSHOPS for the 2009 Program:

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DESIGN PROJECTS

Campers' Response to Design Projects*		
	Mean	Std. Dev.
Mid-Program		
I am enjoying work on the design project	3.33	0.76
I am learning a lot from the design project	3.43	0.82
I am contributing a lot to our team's project	3.40	0.67
End-of-Program		
I enjoyed working on the design project	3.21	0.68
I learned a lot from the design project	3.34	0.86
I contributed a lot to our team's project	3.54	0.58
We produced high quality results for our customer.	3.76	0.44
The customer seemed happy with our work.	3.72	0.53

* Participants rated their level of agreement with each of these statements on a scale from 0 = Strongly Disagree; 1 = Disagree; 2 = Neutral; 3 = Agree; 4 = Strongly Agree.

Historical Progression in Design Project Ratings*					
	Mean (Std. Dev.)				
	2004	2005	2006	2007**	2008***
I enjoyed working on the design project	3.5 (0.6)	3.5 (0.7)	3.6 (0.7)	2.7 (1.0)	3.2 (0.7)
I learned a lot from the design project	3.5 (0.7)	3.6 (0.6)	3.7 (0.6)	3.4 (0.6)	3.3 (0.9)

* These data were taken from the end-of-program questionnaires. Participants rated their level of agreement with these statements on a scale from 0 = Strongly Disagree; 1 = Disagree; 2 = Neutral; 3 = Agree; 4 = Strongly Agree.

** The drop in level of enjoyment in 2007 was significant and probably due to two projects that were too challenging and to some staffing tensions in one group.

***In 2008, two project teams' mean ratings of enjoyment and learning were between 3.3-3.6. The other team's mean ratings of enjoyment and learning were 2.9. This rating was most likely due to a combination of factors including project topic (too easy) and communication challenges among the team's staff members.

Comments from campers about what they learned from design projects:

- How hard it can be to make sure you get all of the person's specifications right.
- I learned a lot about floor plans, the engineering process and how to effectively work on a team.
- I learned that you have to pay a lot of attention all the time and even when it gets boring you have to work as a team. That big things take a long time to do.
- I learned about team work and landscaping. Also about WYC
- I learned about the design process and how to work as a team
- About hope lodge and how cancer patients go to the Hope lodge instead of the hospital. Patients usually stay at the Hope Lodge for 8 weeks or a month and a half.
- About remodeling and working together as a team for many different things. I was a great way to learn about the Hope Lodge and other foundation like it. Also, it was a great way to interact with new people.
- I learned about myself that what is nervousness in school at presentations is just speaking in front of friends. I learned how to do a nice scale model and how to do things business-like.
- You need a lot of alternative plans and the steps in the engineering process
- More about the steps towards completion of the project and what goes into a detailed report sometimes
- Some things are easier with teamwork and people at home depot, lowes, and Aubuchon hardware are extremely grumpy and mean.
- Working as a group and dividing the work
- How to make interior designs. A lot about the Hope Lodge and the people I worked with.
- About budgeting money, that not every good sounding solution is a good one
- Thinking that you can do something in just two weeks
- Work better in a team and how to humble myself
- Learned about WYC, plants, design process, working on a team, what WYC does
- People shouldn't be bossy and try to do all the work. I learned what an amazing feeling it is to have helped the WYC
- How to work with many people to find a solution to a common goal
- It has to be team work or it won't work

Staff Feedback about Design Projects*				
	TAs (N=9)		MSTs (N=3)	
	Mean	Std. Dev.	Mean	Std. Dev.
The project scope and topic seemed realistic and appropriate for this age group.	3.33	0.50	3.00	1.0
The project provided an appropriate level of challenge for our team.	3.56	0.53	3.33	0.58
I was comfortable with the level of guidance and support given by Chrys.	3.44	0.53	3.00	1.73
I think our project team would have benefited from more guidance.	1.89	0.93	2.00	1.00
It was easy to keep our campers focused and motivated on design project tasks.	2.44	0.73	2.36	0.81
Each team member made a real contribution to the project.	2.56	0.88	2.64	0.81
Roles for team members should have been more defined or structured.	1.56	0.88	1.73	0.90
The team produced high quality results for the customer.	3.50	0.53	3.50	0.53
The customer seemed happy with the results the team produced.	3.38	0.52	3.36	0.50
The customer seemed knowledgeable about the project process.	3.00	0.53	2.73	0.79
The design project was successful in teaching girls about problem solving using the engineering design cycle.	3.44	0.53	3.50	0.52
Overall, the design project went well for our team.	3.11	0.60	3.18	0.60

* Staff rated their level of agreement with each of these statements on a scale from 0 = Strongly Disagree; 1 = Disagree; 2 = Neutral; 3 = Agree; 4 = Strongly Agree.

Comments and Suggestions from Teachers:

- (Mid-Program) It would have been helpful to me to be able to meet alone with my TA's for 5-10 minutes 1 day. Many of our decisions this past week seemed to be made on the fly and in front of the campers. Such a brief meeting could take place during lunch or during a workshop when there seemed to be more than enough staff helping. All and all it's been a great week and a very positive experience. It's great to see campers who were tentative on Sunday happy, engaged and social by Monday! This of course could not have been accomplished without the impeccable planning and organization.
- (Mid-Program) If possible, it would be beneficial for the teachers and the TA's to meet during the week.
- (End-of-Program) I don't believe the teachers have a real understanding of what is expected of them. I had the benefit of doing this before, but things have changed since then. It was really difficult at times to keep everyone motivated, including the TAs. There was not much reassurance to us that the supervisors would be there for us if needed. I know we all have a job to do, but as we all know, sometimes it takes everyone working together to get things accomplished: Together Everyone Achieves More! For example, the computers in the lab would not save for over a half hour. I made it

perfectly clear that since we only got internet access last year at my old school, computers were really not my area. However, even though Chrys knew this, she only told me to fix it and didn't offer help to me. She left and went to lunch. I did not feel respected or supported.

- (End-of-Program) Perhaps more discussions on the schedule would be helpful on the design project.

Comments and Suggestions from TAs:

- (Mid-Program) Communication between MST's and TA's needs to improve as there is a disconnect in my group whenever we try to work. TA's and MST's should be approached and talked to more often because it is difficult to approach the MST with complaints about her own teaching style.
- (End-of-Program) I think this week went much smoother than last week.
- (End-of-Program) It is difficult to get some of the girls to focus and stay on task, so more guidance could have been useful. Our MST often seemed confused and seemed to rebute (sic) different ideas the TA's put forth.
- (End-of-Program) The team needs to be watched more carefully because they lost track of what they were doing very quickly
- (End-of-Program) Our team had plenty of guidance. Some girls slacked off more than others and some girls over worked. Team member roles were clearly defined and known by everyone.
- (End-of-Program) I think it would be helpful if Chrys came by our teams more often to offer some more suggestions/tips specifically to each team. Time Management...make sure teams know things usually take longer to do than they think especially final presentation.

Based on these results, consider the following changes in DESIGN PROJECTS for 2009 program:

- We need to find time in the schedule for the Design Project Coordinator (Chrys), MST, and TAs on each team to connect regularly to discuss their team's progress and any adjustments they would like to make. Based on the mid-program evaluations in 2008, we arranged for these meetings at the beginning of the second week, but we should try to have them during the first week as well.
- This year's results show once again the importance of appropriate project topics and scope. At the same time, these projects are becoming more difficult to find and we can't always be choosy.

EVENING / RECREATIONAL ACTIVITIES

Ratings of Enjoyment of Recreational Activities*: Mean (Std. Dev.)		
	Campers	TAs
Ice Cream Sundae Building, Sunday- Week 1	3.4 (0.8)	3.6 (0.5)
Floor Meeting/Getting to Know You, Sunday- Week 1	2.5 (0.9)	2.8 (0.7)
Teambuilding & Games, Monday- Week 1	2.7 (1.0)	3.0 (0.7)
Water Games, Tuesday- Week 1	3.4 (1.0)	3.8 (0.4)
Movie Night, Wednesday- Week 1	3.2 (1.3)	2.1 (0.3)
Arts & Crafts, Thursday- Week 1	3.6 (0.8)	3.2 (0.7)
Airbrush Artists, Friday- Week 1	3.9 (0.4)	3.3 (0.5)
Temporary Tattoos, Friday- Week 1	3.0 (1.0)	3.9 (0.3)

Talent Show, Saturday- Cape Weekend	3.9 (0.3)	3.9 (0.3)
Girls Night In, Sunday- return from Cape Weekend	3.5 (0.8)	3.3 (0.5)
Un-Birthday Party, Monday- Week 2	3.3 (0.8)	3.3 (0.5)
Arts & Crafts, Tuesday- Week 2	3.2 (0.9)	3.3 (0.5)
Bowling, Wednesday- Week 2	3.8 (0.5)	3.0 (0)
Quad Games /T-shirt Signing, Thursday- Week 2	3.1 (0.9)	3.3 (0.5)

* Participants rated their agreement with the statement “I enjoyed _____” for each of these activities on a scale from 0 = Strongly Disagree; 1 = Disagree; 2 = Neutral; 3 = Agree; 4 = Strongly Agree.

Shading indicates most popular activities from the perspective of each group. (TAs were asked to rate camper enjoyment, not their own.)

Responses of TAs to “What are your suggestions for improving the evening segment of the program?”

Mid-Program

- I didn't enjoy Monday night's activities, there were several campers who didn't either.
- Some times during water games it felt like there wasn't enough to do in the amount of time that was allotted. Whoever came up with the relay race, I thought that was a great idea.
- Water games and gimp were big hits
- Girls seemed to really like the slip and slide.
- Slip and slide! I certainly enjoyed it, and so did most of the campers. Also, Red Rover was fun for all.
- The arts and crafts were extremely popular among girls. It gave them an environment to both relax and talk.
- Some campers that did not like the water games did not seem to have too much fun, but overall it was fun for almost all!
- There have been problems in the residence halls with campers being up late and switching rooms. A few girls told me they have things missing. (throw-away camera and food)
- I think there isn't enough of a relationship between RA's and TA's. We seem to be taking on responsibilities that are RA responsibilities. Some campers keep not listening to us and are disobeying us. Also, [Name] has unjustly been set up with rooming with a camper because of a rooming incident.
- There has been some roommate issues.
- There have been a lot of conflicts in the dorms.
- Make sure all campers are satisfied, happy and having fun.
- I think it's important for more of the staff needs to pay attention to the eating habits of the girls because many time they tend to eat lots of junk food.
- The program seems to be super organized and running so smoothly, everything is running on schedule nicely. There are some problems in the residence hall but I think it's bound to happen this way no matter what we do.

End of Program

- They really liked using the photos for scrapbooking so maybe print out more next time. Also don't put temporary tattoos next to water!
- You shouldn't have bowling on TA night out
- I suggest karaoke at the reunion again!
- Maybe have "tomboy" activities too: gameboy or something of that sort.
- I think the games/activities went really well. Although on the Girls Night In some of the girls weren't so into it. Overall they went well.

- The scrapbooking was such a good idea! The girls had fun with it and it's a great way to remember everyone. And same with t-shirts, it was fun yet a good way to say goodbye.

Based on these results, consider the following changes in EVENING ACTIVITIES for the 2009 program:

-

MEASURES OF OVERALL SATISFACTION

CAMPERS

Program Satisfaction Indicators*		
	Mean	Std. Dev.
Mid-Program:		
The program staff are helpful and friendly.	3.73	0.45
The program is well organized.	3.67	0.61
The food is good.	3.48	0.90
Things are going well in the residence hall.	3.07	0.98
End-of-Program		
The program staff were helpful and friendly.	3.76	0.44
The program was well organized.	3.69	0.54
The food was good.	3.38	0.78
The living arrangements in the residence hall were good.	3.21	0.73

* Participants rated their level of agreement with each of these statements on a scale from 0 = Strongly Disagree; 1 = Disagree; 2 = Neutral; 3 = Agree; 4 = Strongly Agree.

Campers' Ratings of the Overall Program Experience						
Program Year*	% of Campers Providing Each Rating					Mean Rating**
	Very Poor	Poor	Fair	Good	Outstanding	
1999	0%	0%	13%	46%	42%	3.32
2000	0%	0%	3%	17%	80%	3.77
2001	0%	0%	3%	34%	62%	3.56
2002	0%	0%	0%	7%	93%	3.93
2003	0%	0%	3%	27%	70%	3.67
2004	0%	0%	0%	13%	87%	3.87
2005	0%	0%	0%	7%	93%	3.93
2006 [#]	0%	0%	0%	20%	77%	3.78
2007	0%	0%	0%	10%	90%	3.90
2008	0%	0%	3%	28%	69%	3.66

* Data not available for 1997 and 1998 programs.

**Calculated using Very Poor = 0; Poor = 1; Fair = 2; Good = 3; Outstanding = 4.

[#] Does not sum to 100% because 1 respondent circled both Good and Outstanding. For the purposes of determining an average, that response was entered as 3.5

General Program Feedback from Campers

What did you like most about the camp experience?

- I really liked making a lot of new friends and knowing that I was helping the Worcester Youth Center
- learning lots of new things and meeting new people.
- I liked the trip to Cape Cod
- meeting new people and doing new things
- meeting new friends
- I like it all but I enjoyed the forensics activity
- meeting new friends
- getting to know other people who are interested in engineering
- I met some new people and made new friends. It was a great learning experience and lots of fun. I feel good that I helped Hope Lodge.
- I liked the BOSE trip, arts and crafts, bowling, cape cod, and a couple other things.
- I liked the airbrush shirts
- everything!
- liked it all!
- making new friends
- every day we were doing something fun and different
- the design projects were a blast and fun to do
- meeting new people and learning new things
- meeting new people
- getting to meet new and different people, learning new things
- I learned something each day
- meeting new people
- meeting so many new people, and really getting to know them
- getting to know more about engineering
- learning experiences and getting to explore the engineering field

- meeting friends and having a BLAST at most activities. Helping people with my project
- making friends, the labs, the evening activities
- forensics activity
- becoming friends with campers and TA's

What did you like least about the camp experience?

- I least liked not being able to shower at the Cape.
- that we didn't get to go swimming
- I least liked the Girls' Night In
- not getting to pick your roommate
- people stealing
- the lecturing parts...
- the scavenger hunt - I just don't like crabs and sometimes you step on something sharp and the stairs
- not knowing where to go
- the game of Island to Island
- I didn't like how we couldn't watch a pg or pg-13 movie or pick our partners. Also I wish we could have more time to just hang around and not go in our rooms at 9pm.
- there wasn't much I didn't really like
- I didn't really like the unbirthday party
- none
- nothing
- waking-up early
- everything was awesome
- the residence hall, no AC :(
- the rooms were just a little bit too small
- didn't like my roommate at first. Not being able to interact with other people at lunch
- living arrangements
- didn't like being in a classroom all day and only being able to make one phone call
- cold conference room for our projects
- not getting to see my family for almost 2 weeks
- nothing
- the stairs
- homesickness, and the rooms and food
- some of the lectures and not enough computer time. And only one time to call parents.
- having to read in the hallway at night because roommate was too loud
- the stairs

What suggestions do you have to improve the camp for next year?

- I don't have any, I loved everything!
- nothing really it was a great time
- Have a bit longer free time
- when they do the GNI to put not only girls things but tomboy stuff too.
- less lecturing
- I don't have anything to write. This was a wonderful experience.
- have a better map
- don't change anything!
- Ask parents for rating and let campers pick own partners or roommates. Let camper interact with other people at lunch.

- Have henna tattoos at the reunion
- maybe have each of the teams design a separate part of the unbirthday party?
- If you say the forensics science is real make it more realistic and think about how likely it was for that to happen.
- do more engineering like wacky shoes, sand castle building and Who Dunit
- please arrange roommates based on profiles/personalities better
- include more hands on activities
- do more outdoor activities and let people bring a phone so they can call home during free time
- camp was excellent
- give out posters that people could have signed instead of having to have your t-shirt signed
- nothing really it was a great time
- more organized evening activities
- where did the segways go?!
- sometimes let us choose the group, have lunch be 1/2 hour and keep the forensics
- have an earlier quiet time but a later lights out
- let us take elevators

PARENTS

The results presented here are based on responses from 19 out of 29 parents to a mail survey distributed in October-November 2008.

Respondents' Assessment of Program Value Compared to Tuition*					
The value and quality of the program...	2004	2005	2006	2007	2008
1: ... was much less than expected, given the tuition.	0%	0%	0%	0%	0%
2: ... was a little less than expected, given the tuition.	0%	0%	0%	0%	0%
3: ... was about right given the tuition.	4%	5%	0%	13.3%	10%
4: ... exceeded what we paid in tuition.	24%	20%	29%	33.3%**	16%
5: ... far exceeded what we paid in tuition.	72%	75%	71%	53.3%	74%
Average Rating	4.68	4.70	4.71	4.40	4.63
	0.56	0.57	0.46	0.74	0.68

* Tuition was \$400 in 2004 , \$500 in 2005 -2007, and \$525 in 2008.

**One parent wrote in: "Thank you for making it affordable by providing financial assistance."

Parents' Overall Score for the Camp Program						
Program Year	% of Parents Providing Each Rating					Mean Rating*
	Poor	Somewhat disappointing	Good	Very good	Excellent	
2003	0%	0%	0%	20%	80%	4.80
2004	0%	0%	0%	16%	84%	4.84
2005	0%	0%	0%	0%	100%	5.00
2006	0%	0%	0%	14%	86%	4.86
2007	0%	0%	0%	13%	87%	4.90
2008	0%	0%	0%	16%	84%	4.80

*Calculated using Poor=1; Disappointing=2; Good=3; Very good = 4; Excellent= 5

What positive things (general or specific), if any, has your daughter brought up that happened at camp?

- [Name] loved working on the projects, loved working in groups with the other girls, and loved the independence of being off on her own. The shoe design and the door alarm projects were fun for her and she really enjoyed the opportunity to work at the Worcester Youth Center.
- The different projects, working with a team, new friendships, volunteering, the learning element.
- [Name] still talks about the hands on events. She liked using the wheelchair to get the idea of how a handicapped person would get around and try to reach for objects out of their reach.
- Most enjoyed designing activities and trip to the Cape.
- Superb experience. She was excited to review all her projects with us.
- Friends she made at the camp. Liked the fact they implemented their project at the Hope Lodge. To actually put their idea into reality- see their project through to completion. But also being able to participate in community service on projects where it makes sense.
- [Name] learned new things that otherwise she wouldn't have. New experiences with other girls and friendships.
- Everything! She loved it! The new experiences she was introduced to, just everything!
- Social interactions, the many varied engineering activities, [Name] had the time of her life! Thank you!
- The independence she felt there, even though always monitored. She fondly and excitedly talks about everything she did at camp with her family and friends-- with much pride at having been chosen to participate.
- She has a feeling of great pride with regards to her project at Worcester Youth Center. She seems more confident in her math and science abilities. She still talks about the trip to Bose.
- Desire to stay involved in Camp Reach as volunteer as she gets older. Ability to adapt to being away from home with strangers. Continued discussions about technical subjects addressed at camp.
- [Name] loved the camp-- completely enjoyed the other campers, the teamwork and fun activities. She still mentions program directors direct involvement as well as counselors and Ras. She seems more focused on areas of technology and how it works in careers. She loved the community project and enjoyed seeing her project completed.
- She loved the classes, the field trip, the Cape and the fact that they did challenging projects! [Name] was very grateful for the opportunity.
- [Name] met new friends, got to experience an extended time away from home and loved that there was an "unbirthday" celebration-- she turned 12 at camp. The cake was very special to her.

- She loved the design projects, forensics, building sand castles, being silly with the other girls, and eating in the dining hall.
- She was comfortable away from home. She didn't express any issues. She made good friends and came home with the same smile on her face as the one she left home with. I would say the meal choices, the bed time, and the detail in their projects was excellent!!
- She enjoyed working in a group. It was hard but she learned a lot.
- [Name] enjoyed her experience and I have noticed a willingness in her to try things outside her comfort zone. (ex. ran track for the 1st time this year and trying out for basketball even though she has never played.) She enjoyed her project and continues to keep us with in from newspaper articles.

What negative things (general or specific), if any, has your daughter brought up that happened at camp?

- Only that it had to end! [Name] had an absolutely wonderful experience.
- [Name] mentioned of how nervous she was about the public speaking. However, we always tell her how proud we are of her.
- Problems with roommate and roommate's friends
- Her and roommate were not compatible but she didn't dwell on that.
- The only negative comment [Name] had about camp was "her roommate was annoying."
- Nothing!
- None!
- A little bit of homesickness and sadness that it had to end.
- The whole fiasco with her roommate. She didn't like the food-- she felt it was very greasy and she didn't have as many healthy options as she would have liked.
- Only negative comment [Name] had was it took her a while to make some friends but I think that has more to do with her personality.
- The only negative about the entire experience she mentioned was that her roommate was rude to her and tried to involve other girls in demeaning her. But other girls only helped to convince her to talk to RAs and that it was the other girls problem, not [Name]'s. She was reassigned to another room, a negative turned to a positive.
- Well, her grandmother died during the camp stay...so her time at camp was somewhat disrupted.
- Nothing negative-- maybe a bit homesick but not to the extent that she could not stay. Also, she wished that there had been air conditioning in the dorm rooms.
- Other than about homesickness, no negatives. (She did wish the RAs had a master key. Though she never locked herself out, she helped deal with friends in the middle of the night!)
- The only negative mentioned was one child's behavior and one child needing to go home. But, this isn't any reflection on WPI's programs. I'd say you're doing quite well
- She wished it was a bit more multicultural.
- She mentioned some "mean girls" who trashed another campers personal belongings, spraying bug spray all over.

What suggestions do you have for improving the camp from your perspective as parent or guardian?

- Our only regret is that there isn't a similar immersion experience available to girls in subsequent summers.
- My only suggestion would be that the roommates should get a chance to know each other before the first day of camp.
- None, it was a great mix of fun, learning and growing.
- Possibly giving them materials on various engineering careers to take with them when they leave or introduce them to engineers who currently have various jobs so they realize engineering is the degree they need.

- None. I thought it was a great experience for my daughter.
- I think you did a wonderful job. But I would like to see maybe more follow-up just after camp ended. And maybe a report on how my daughter did at camp. Otherwise excellent program!
- Truly none.
- I loved it as it was/is.
- Maybe go over rules of conduct for the girls, or even dorm room etiquette. I liked having daily emails from her-- knowing that we'd connect briefly each morning!
- Keep tuition as low as possible so girls from lower income families have access
- Only that as it was a difficult time for us as a family due to a medical crisis at home and while [Staff member] spoke to her when she was very upset one night and that was much appreciated, I found only using email to communicate at that time of the day difficult so her sister was more helpful in relaying messages for me, and I'm not great with computers on a good day.
- Keep it going! Having alum come to stay involved!
- After looking at Rachel's 2 week plan, I sure wish I had the opportunity to learn and study some of the things she did. She loved forensic science! How about adding a short demonstration on one of the topics for parents?
- We would have liked a more direct way to contact a team-member "after-hours." It was disconcerting having to go through security.
- You may be already doing this: my thought was to nurture girls all the way into college through summer programs in engineering that grow and mature as they do. This fosters the love and continued perseverance into the field of various sciences.
- I know the economy is tight but the group with the \$50 budget was a little lame.

STAFF

Overall Impressions and Satisfaction of Staff Members: Mean (Std. Dev)		
	TAs (N=9)	MSTs (N=3)
The program ran smoothly and was well organized.	3.2 (0.7)	3.7 (0.6)
During the camp program, there was good communication between staff members.	3.0 (0.5)	1.7 (1.2)
The food arrangements were good.	2.8 (0.8)	3.7 (0.6)
Things ran well in the residence hall	2.7 (0.9)	N/A
I learned a lot from being a Camp Reach staff member.	3.6 (0.5)	3.7 (0.6)

* Staff members rated their level of agreement with each of these statements on a scale from 0 = Strongly Disagree; 1 = Disagree; 2 = Neutral; 3 = Agree; 4 = Strongly Agree.

Feedback and Suggestions from Teachers

What did you like most about the camp experience?

- I love the fact to learn about what new and up and coming in science/engineering. I liked the consistency of math but I like the fact that science/engineering is every changing.
- I enjoyed working on the design project with the campers. The workshops were great and we (campers and I) enjoyed them. Although each step in the engineering process was described and discussed, there were times that I was concerned if our team was on track. As it turned out, the team did well and had a very positive experience.

- I really enjoyed working with three different age groups of hardworking, intelligent and forward-thinking women. Also, it was extremely satisfying to see my campers grow as independent and responsible learners

What did you like least about the camp experience?

- I didn't like the fact that we did not get a real break from the students. I care a great deal about them, but need adult time.

What are the one or two things you think we should focus most on in making improvements or refinements for next year?

- Give 10-15 minutes a day for teachers to brainstorm with one another/take a break.
- Supply boxes: Include at least 3 measuring tapes, 10 clipboards, 5 geometric shape templates, orienteering compass (as required by the project), geometric compass, 1 box of Kleenex and a bag of bandaids. Age appropriate design/scale drawing software. On attached sheet: at least one experienced MST, offer position to engineering teachers/media specialist? No gum in classrooms.

Feedback and Suggestions from TAs

What did you like most about the camp experience?

- I loved making new friends and bonding with the girls and I liked seeing them become more comfortable with themselves and their developing interests, especially those in math and science.
- I loved really bonding with the campers this year and the TA as well. The workshops were a lot of fun and it was nice to have such a hard working design team.
- Like last year I really enjoyed spending time with all of the girls. I thought the Sustainable energy was a great addition. Robotics, Rehabilitation, and Forensics are always a favorite.
- I liked hanging out and getting to know the kids. Plus they seemed to like me back because I didn't treat them like they were babies.
- I liked spending time with the campers and getting to know everybody
- Learning even more!
- Being with the girls and experiencing the camp from a leading role rather than a camper.
- Getting to know the girls, getting more experience in a leadership position, helping with the Forensics activity.
- I really enjoyed just being around the campers. They are all so different from one another, and even myself, but it was fun to learn about each of them.

What did you like least about the camp experience?

- Working on my design project team with my MST was at times very frustrating and difficult and we clashed on many topics and ideas.
- Always being tired, but that is really inevitable.
- I didn't like how all the non-classroom activities were grouped together
- I liked it least when a clique was formed in our TA group.
- That everybody got sick. Can't be changed..but still would have been a little better if there was less illness
- Oh, cafeteria food! It wasn't that bad but my opinion was ruined by some moldy fruit!
- The food in the cafeteria the girls ate.
- The time set aside for lunch/dinner is too long.
- Well there's nothing I didn't like about camp! Well, besides waking up so early

What are the one or two things you think we should focus most on in making improvements for next year?

- Better Chrys-MST-TA communication
- Shortening dinner and lunch, at least by 15 minutes. There is always too much time at the end of meals, especially when we're the only ones in the dining hall. Most finish eating within the first 20 min and just keep eating more because they are bored.
- Forensics lab should be "harder"
- I think you should focus on making the Sustainable Energy Demo more interesting.
- Sustainable Energy Demo
- I think it is important to make sure ALL staff members know their roles in the design project.
- Consider the girls' roommate placement more or ask each girl privately 1st week before Cape Cod how the residence hall situation is.
- One thing I think that would really help would be a camper orientation day. Like with parents for tours but then times for roommates to get to know each other, maybe exchange email, and if they know it won't work maybe that could be worked out before hand? Also making the forensics not the last day because so much going on with the design project.

Based on these results, consider following changes related to STAFF for the 2009 Program:

- As mentioned previously, we will try to find time in the schedule for the Design Project Coordinator (Chrys), MST, and TAs on each team to connect regularly to discuss their team's progress and any adjustments they would like to make. Based on the mid-program evaluations in 2008, we arranged for these meetings at the beginning of the second week, but we should try to have them during the first week as well.

STAFF TRAINING

Staff Preparedness Resulting from Training and Orientation*		
	Mean*	Std. Dev.
I was sufficiently prepared to address issues related to adolescent behavior.	3.67	0.49
I felt knowledgeable about camp policies and procedures.	3.50	0.52
After staff orientation, I felt comfortable with other staff members and felt we could be an effective team.	3.33	0.65
I was sufficiently prepared to address issues related to homesickness.	2.92	0.67
I was sufficiently prepared to facilitate our teams' work on the design project.	3.33	0.65
I was sufficiently prepared for the following workshops:		
Team Building Activity (Island to Island)	2.92	1.00
Un-Birthday Party Design	3.42	0.51
Wacky Shoes	3.42	0.51
Forensics / Who Dunit	3.42	0.90
Sustainable Energy Demo	3.25	0.62
Robotics	3.25	0.62
EE: Dance Pad Mania	3.00	0.85
Salt Marsh Scavenger Hunt	3.20	0.92

Sunscreen Testing	2.60	0.84
Sandcastle Building Workshop	3.33	0.50
Civil Engineering: Wild Weather	3.33	0.49
Field Trip to Bose	3.17	0.58
Rehabilitation Engineering Workshop	3.33	0.49
Snack Attack	3.33	0.49

* Staff members rated their level of agreement with each of these statements on a scale from 0 = Strongly Disagree; 1 = Disagree; 2 = Neutral; 3 = Agree; 4 = Strongly Agree.

Suggestions for improvements in staff training and orientation:

- I was completely unaware that Jason would be there or that he would be the one operating the machine. I had to explain everything to the girls while he operated the machine and I expected the opposite.
- I felt well prepared.
- Discuss other activities of the Cape besides castle building. Make sure the TA are clear on the building a circuit project
- The staff orientation covered most everything and if not the sheets were in our binders which helped us help the girls because we knew what we were doing.
- As I stated in the mid-program eval, I have the advantage of being a science (as well as math) teacher. I have skills, knowledge, and experience teachers who teach only math may not have. I suggest picking science/math teachers and or preparing the math teachers more for the workshops.
- Wonderful workshops

Based on these results, make the following changes in TRAINING for 2009 program:

-

**PARENTS' FEEDBACK ON
PRE-CAMP COMMUNICATIONS, OPENING DAY, AND CLOSING DAY**

	N	Mean	Std. Dev.
Overall, what was your sense of comfort and preparedness in bringing your daughter to WPI's Camp Reach today, based on our pre-camp communications?*	30	4.8	0.6
How useful were the opening day activities?***	19	4.5	0.9
How useful was the closing day parents' session?***	19	4.3	1.0
* 1= Definitely uncomfortable; 2= Somewhat uncomfortable; 3= In between; 4= Somewhat comfortable; 5= Definitely comfortable			
** 1= Not at all useful; 2= Marginally useful; 3= Somewhat useful; 4= Useful; 5= Very useful			

Areas for improvement in opening day activities and closing day parents' session:

- Everything was well-organized and appropriately timed, from our perspective.
- I think you really covered everything. It was such an important part of the program that it should be mandatory for a parent to be there.

- none
- I thought each day was very informative. No improvement that I can think of
- I think you did a great job
- None, I am so impressed with your organization and thoroughness.
- None. I think both went smoothly and covered questions many parents didn't even think to ask. Very informative and thorough!
- The parent's session on the closing day was long and although we liked hearing about options for continuing her interest in science and technology, I think it could have been shortened.
- Opening day ceremonies I thought were perfect in duration, scope, and efficiency. Closing day ceremony was a bit long but I don't know how to shorten it without cutting scope-- is a dinner necessary?
- Only that closing day ceremonies being held in different areas all over campus was not fun- where presentations were done was fine, staying in one place was better.
- Maybe to have the kids do "more" of the closing day sessions...more of them speaking...
- No improvements necessary. Everything was well planned. But-see #11 on the back. Maybe add an interactive session/class for the parents on closing day?
- The closing session would have benefited from info in writing on further opportunities for the girls. The location was too big and lecture hall-ish. I would have liked time to meet/talk with more parents
- A light lunch would have been nice to give parents time to meet and greet others especially the other girls parents whom they were bunking with.