

Camp Reach 2004 Annual Report Evaluation Addendum

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EFFECT OF PROGRAM ON CAMPERS

Comparison of Pre Program vs. End-of-Program Camper Questionnaires			
	Mean		<i>p</i> [^]
	Pre	Post	
<i>Interest in and Knowledge of Engineering</i>			
I find engineering and technology to be interesting.*	3.30	3.63	.005
I have a good understanding of what engineering is.*	2.97	3.47	.000
<i>Motivation Toward Education</i>			
I am looking forward to math and science courses in middle school and high school.*	3.13	3.47	.039
I have given a lot of thought to my future career.*	3.03	3.00	.813
<i>Confidence, Efficacy, and Self-Esteem</i>			
I could be an engineer if I wanted to.*	2.93	3.61	.000
Skills rating [#]	71.7	76.7	.000
Self-esteem score [†]	35.1	37.1	.011
<p>[^] Determined from paired-samples t-tests. The value <i>p</i> is the probability that the observed difference between the means is due to chance alone. In social science research, <i>p</i> 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 23 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 23 responses, for a maximum possible score of 92.</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	The study of technology and/or communications as a science. Engineers help people and organizations. The also figure out better ways to do things	The process in which engineers use their innovative skills to find solutions to problems involving people, places, and things.
2	There are different types of engineering, ex. Electrical. Engineering is math and science.	They build things using science and math. They make things better.
3	Building things and designing.	The study of technology.
4	Building things to help mankind.	Working to solve problems to make things better for people.
5	I don’t know.	Engineering is a process where you help people with their problems like designing a room.
6	Don’t know.	
7	The art of thought and then actually doing the thought.	The ability to think up an idea and help make it happen.
8	Working with computers/ math and science	
9	Engineering is constructing and building things.	Engineering is solving problems and finding solutions to the problems.
10		Science through technology?

11	Fixing things and to build different things for people to use.	Help people, protecting people, building things, designing things.
12	It is where you build, invent, and know the way things (like electrical things) work.	I think engineering is where you use your brain to invent something new, make something better, or just using your mind to solve problems.
13	Engineering is putting together pieces of metal, etc. and making something new and useful. Or building with other materials.	Working with many things to improve something else.
14	Don't know.	A person who helps others using science and technology.
15	Engineering is building stuff with technology.	Engineering is using technology to solve problems and help people.
16	Engineering is constructing things using math and science.	Engineering is when you take a problem and come up with a solution to help people using math and science.
17	The study of technology and building, I think.	Engineering is the study of how things are done, can be done, and work?
18	Fixing problems, working with architects.	The ability to use technology to solve problems.
19	Working with computers.	Engineering is solving a problem with technology.
20	Working, building, with moving objects, organizing/constructing.	The science that helps you build and construct.
21	Designing and the building.	Solving and answering everyday problems to make things better.
22	Working with things and figuring them out.	Find problem that are in people everyday life and solving them.
23	Engineering is the science of applying technology to solve problems.	Engineering is the science of applying technology to solve problems.
24		Engineering is solving problems through the use of technology.
25	Putting things together like making a car- or an invention.	Inventing something new to help people.
26		Engineering is somebody who invents things, make something better.
27	Building or working with things.	Using math and science to solve a problem.
28	It has to do with computers.	Engineering is finding a problem and fixing it.
29	Engineering is creating things, fixing things, and building and making things.	Engineering is designing things and figuring out the way things work and using and inventing technology.
30	I only know it involves math.	Engineers solve problems using math and science.

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>)	9	<i>p = .011</i>
Pre: Mentioned engineering as a helping profession Post: Did not mention engineering as a helping profession (<i>Negative Change</i>)	1	
No change from Pre to Post	20	
Pre: Did not mention engineers as problem solvers Post: Mentioned engineers as problem solvers (<i>Positive Change</i>)	14	<i>p = .000</i>
Pre: Mentioned engineers as problem solves Post: Did not mention engineers as problem solvers (<i>Negative Change</i>)	0	
No change from Pre to Post	16	
* This test makes pairwise comparisons of two distributions to determine if they differ significantly from each other. Both of these tests show that significantly more participants identified “helping” and “problem solving” as elements of engineering after the Camp Reach program compared to before the Camp Reach program.		

Has Camp Reach changed your opinions about science and engineering?

- “I had no idea that there were so many kinds of engineers.”
- “It taught me that science and math can go together in a very fun job.”
- “The Bose trip definitely changed my mind about engineering.”
- “I now realize that science and engineering aren’t just about working in labs and with computers.”
- “I am now thinking about being an engineer because I know more about it.”
- “I no longer think it is boring because it is fun!”
- “Yes, they make it sound fun and they show you all types of engineering.”
- “It made me understand and respect science/engineering more.”
- “I never knew there were that many kinds of engineering and so many different jobs you can call engineering.”
- “Yes, because I found out it can be used to help the disabled, make fire protection, and help solve crimes.”
- “Camp Reach has introduced me to engineering. I know that I can be one if I want and thanks to Camp Reach I might.”
- “I never liked this kind of stuff but now I find it very interesting.”
- “I wasn’t into science at all, but now I see a whole different perspective on it.”
- “Now that I worked on the Who Dunit Project I think that I might want to be a Forensic Scientist or an Engineer.”

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

- “I now have expanded my career interests from radiology to forensic engineer and biomedical engineer, because they are all still somewhat in the medical field.”
- “I wasn’t so sure I wanted to be an engineer when I came but now I’m considering being one.”
- “Yes, the Bose trip!”
- “I now want to be in law or the police so I’ll be one of those people who use science to solve a crime.”
- “Camp Reach made me interested in being a detective because it is very cool and fun.”
- “I want to be a mechanical or chemical engineer.”
- “I want to be an architect.”

Effect of Program on Campers: Parent and Teacher Perspectives

Teachers' Observations of Campers' Attitudes and Abilities* (N=30)				
	Initial Assessment**		Change during Program***	
	Mean	Std. Dev.	Mean	Std. Dev.
Interest in engineering, science & technology	3.57	0.73	3.63	0.67
Motivation toward education, learning, and achievement	3.73	0.91	3.33	0.61
Ability to work with others	3.73	0.87	3.45	0.57
Interpersonal communication skills	3.73	0.87	3.53	0.63
Self-confidence	3.70	0.88	3.57	0.63
<p>* Each camper was assessed by the Middle School Teacher who was facilitating the work of her design project team.</p> <p>** 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</p> <p>*** 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</p>				

Parents' Assessment of Daughters' Attitudes and Abilities* (N=23)			
	Mean**		p[^]
	Pre	Post	
Interest in engineering, science & technology	3.96	3.98	.888
Motivation toward education, learning, and achievement	4.68	4.61	.589
Ability to work with others	4.48	4.59	.570
Interpersonal communication skills	4.23	4.18	.747
Self-confidence	3.72	4.07	.015
<p>* Parents completed these assessments on opening day and in a questionnaire completed in October or 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>[^] Determined from paired-samples t-tests. The value <i>p</i> is the probability that the observed difference between the means is due to chance alone. In social science research, <i>p</i> values less than 0.05 (highlighted in yellow above) are generally viewed to be statistically significant.</p>			

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

- It gave my daughter more confidence about her schoolwork and helped her become more independent. Now she wants to become an engineer when she grows up.
- No negative effects. Increased her level of independence and her ability to work with others in a group setting.
- She still has contact with the girls from camp. She attended her roommate's Bat Mitzvah last weekend and saw about 6 other campers. This was an experience she would not have had without Camp Reach so it has opened her viewpoint. She seems to be herself and most comfortable with the campers. At her own middle school she academically is doing very well but still isn't comfortable overall in the setting.
- Time away from home with a peer group has helped with her maturity and understanding of individual responsibility. She has expanded understanding and appreciation of making friends and working as a

team with other people she had just met. She has a much wider and deeper understanding of careers and activities associated with engineering.

- Since this was her first time away from home for 2 weeks this experience has made her become more independent and has allowed her to be open to new opportunities and in meeting new friends.
- Very empowering to meet girls from other schools and to develop relationships. Great exposure to college life and the inherent effect this has on going into college (reinforcement).
- She seems to be taking on more in her daily care—more independent.
- She got a much deeper exposure to the world of engineering, science, and technology and appreciates the purpose of engineering. She also realized it is not her “personal niche.” She was somewhat disappointed that environmental engineering was not represented as a career choice.
- The program taught our daughter how to work as a team and to follow through. It taught her to dig deeper than the surface to find the answers to difficult questions.
- She has definitely become more independent. She has the ability to walk into an unfamiliar situation and make it work.
- I believe that her self confidence and independence has grown thanks to this program. She is not afraid to excel academically.
- She had a very positive experience at the camp, both academically and socially. She remains very enthusiastic about learning and is very interested in bio-engineering, of which she knew nothing before. The information on medical school and biomedical engineering was very enlightening.
- She is more comfortable in a group of people that she does not know. Mixes better with kids. Seems much more analytical in approach to classwork and homework. Overall better connected to ideas, school, and friends.
- She met some wonderful girls JUST like her.
- It broadened her vision about engineering education/skills. It increased her confidence to work with a new group of people comfortably in a totally new setting without feeling homesickness.
- Increased her independence, taught her to do her own laundry! Exposed her to a new variety of experiences which are considered non-traditional. Taught her about her Dad’s college experience (he went to WPI) and his field.
- At this point I have to say that there are only positive effects for both of us. She is much more independent, confident in her decisions, and now she seems to enjoy both math and science. I hope this continues!
- You opened her eyes to the idea that there could be interesting careers in engineering. She left WPI saying she wanted to be a fire technology engineer!
- She became more confident, especially in the area of teamwork and independent research. She made a number of new friends from diverse backgrounds who she has been IMing with.
- She entered the program with enthusiasm and that did not wane. I think she is proud to have participated and succeeded in a college program. She is interested in engineering and this supports and reinforces that interest.
- She is more interested in exploring the fields of engineering and other careers. She became somewhat more responsible and independent.
- She enjoys talking about the program and its content with her teachers now.
- She did seem to put on weight at Camp Reach. As a parent I feel that having free access to food was a negative thing for her, which was discussed prior to her coming. Overall, she did have an educationally rewarding experience, and we are grateful for that.
- Increased confident in problem solving. Increased interest in science/engineering issues.

STAFF DEVELOPMENT GOALS

Effects of the Camp Reach Program on Staff Members		
	Mean	Std. Dev.
As a result of Camp Reach 2004 I have a better understanding of engineering. (All Staff)	3.00	1.25
I will be able to adapt design project or workshop activities or approaches in my own teaching (Middle School Teachers Only)	2.67	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)	2.67	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?

- “I have thought more about how to empower girls in science/math/engineering.”
- “Learned more about engineering and about organizing a decision-making process.”
- “Due to lack of support as a woman who loves math and science, I am touched by the girls who have been touched and inspired by Camp Reach.”
- “The first hand experience of working with the girls on the design team. It was nice to see how much they could accomplish when given the chance.”

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

- “There has been talk about getting our students involved in a science fair, and the concept of using the engineering problem solving approach may help students come up with ideas for projects.”
- “Show students that there are real applications that can come of their work.”
- “I can reference projects and workshops.”
- “I might consider partnering with a local organization as a result of working on the design project.”

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

- “I realized there is so much more to engineering than office jobs and building things, and I learned how this can be expressed to students.”
- “I realized engineering is a broader and more pervasive field, and it is a place where women can and should make their voices heard.”
- ”My knowledge or attitude didn’t change, but I am very happy to know that there are programs like Camp Reach to “grab” middle school girls attention and give them the opportunity to live, see, and feel math, science, engineering, and technology in action.”

Comments from High School Teaching Assistants

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

- The experience of working with such a wide variety of people has been the most valuable aspect of the program for me.
- Being a TA gave me a new role of guidance and teaching, which brought new responsibility and experiences. The age different made me feel like the campers were my friends/sisters, and I learned a lot from my Middle School Teacher.

- I don't think it has affected my personal development. I had lots of fun and learned some stuff about engineering that I don't remember from when I went to Camp Reach.
- Interaction between the staff and campers.
- I learned that I really like working with people. I liked passing on things that I've learned to the campers.
- I had to be responsible, and take responsibility for these girls. Being a TA has helped me to become more patient and also have the ability to be both a friend and an authority figure to these girls.
- Seeing the difference one can make in a younger person's life. A lot of self-satisfaction comes from knowing that you have become a role model to a large group of girls. I also enjoyed teaching them about engineering and showing that it is OK to be smart and interested in subjects typically dominated by men.

Has this program changed your opinions about science and engineering? If so, how?

- While I personally am not especially interested in engineering, the camp showed me ways that it can be just as enjoyable as any other profession.
- I have always enjoyed science and engineering so I guess the camp hasn't really changed my opinion. I still like science and engineering.
- No, I liked math, science, and engineering before coming to Reach.
- I already thought highly of science and engineering, but it reinstated the idea that these things do not have to be boring like in school, which I have experienced.
- Now I wouldn't be completely opposed to a career in engineering, but it is still not my career of choice.
- Camp Reach has once again made me interested in engineering and it has made me rethink what I want to study after high school.

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

- It hasn't really changed what I want to do. I still think I want to do something with computer science or engineering.
- Engineering degrees will definitely give me an edge even if I don't become an engineer, and this program solidified this notion I have learned in school.
- No, I was previously interested in engineering.
- This program has reminded me that engineering is still a good career path. There are so many directions that I could go with it. I have already been thinking about engineering, but this program was good encouragement.
- It made me more interested in biomedical and chemical engineering.
- This program has caused me to think differently about my future career because it has made me like science and engineering again.

EFFECTS OF CAMP REACH ON FAMILIES

Effect of Program on Parents' Understanding of Engineering (N=23)			
	Mean		p^{\wedge}
	Pre	Post	
I/we have a good understanding of engineering and engineering careers.*	3.79	3.83	0.846
* 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.			

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

- I was very impressed with the amount of work they accomplished in such a short period of time. Her younger sister can't wait until she is old enough to attend.
- My son came to the closing ceremony. He found the information given by Stephanie very interesting. He had attended an engineering camp at UMass Lowell for a week this summer but he was quite impressed with the experiences his sister had. (They are twins.) I found the information on the H.S. program helpful as well as GEMS Jr.
- Made us consider the fact that engineering is an exciting and attainable field for Rebecca to study, should she choose to. This was the first time she was away from our family for this period of time and it made us realize what she contributes to our family. We recognize Rebecca's maturity level to participate in this program and that she is a very well rounded individual with respect to academic and social skills.
- I can't wait to send my younger daughter.
- Helped us experience time away from our daughter and that it is "okay." Allowed for furthered "real time" discussions related to career choices. Reinforced the power of females.
- Science is so important!
- I am hoping she changes her mind about pursuing a career in engineering, science, or technology. I also left very impressed with the WPI campus and the Office of Diversity & Women's Programs.
- Being an only child maybe she is more protected and our focus is just on her. On Friday when we saw the presentation and saw how much was accomplished in such a short period of time amazed me.
- I will continue to advise that she at least give something a shot and to be sure to challenge herself.
- It was a very informative for the family to learn more about engineering careers. The program serves as a model positive experience for our daughter and her younger sister. We all remain upbeat about the camp, but follow up and reinforcement is important and not evident to date.
- I am more comfortable in trusting her good judgment.
- The program had little influence upon us... but we are knowledgeable in the world of math and science.
- It gave us confidence that my daughter can mix easily with a new group of people under well managed/ guided/ supervised program like this any time in future.
- Our younger daughter (age 9) is looking forward to being old enough to go! It made us aware of other opportunities available that are considered non-traditional.
- I had my doubts about the program, and was very hesitant to let her participate. I am now very glad she did. I know she can be away from me and do just fine, and I see that opportunities like Camp Reach are very important.

- Made me understand that she is capable and happy to be away from home, friends, and family and she would thrive.
- We became more aware of how children of this age group are very capable of problem-solving and generating engineering solutions.
- Better understanding of engineering.
- I am very pleased that she could be in this program that her sister did years ago. It gave them a common experience.
- I just felt that this was a wonderful program for my daughter. It helped to broaden her outlook on what's available to her educationally. It helped her to learn to be a team player and to accept other peers' differences.
- It was very good for her two older brothers to see her this way—capable, bright, happy, and confident.
- Her younger sibling twin sisters are now looking forward to their Camp Reach experience, because she enjoyed hers so much.

DISCOVERY WORKSHOPS AND OTHER ACADEMIC ACTIVITIES

Campers' Ratings of Discovery Workshops and Other Program Activities*				
	Degree of Enjoyment		Degree of Learning	
	Mean	Std. Dev.	Mean	Std. Dev.
Segways & Gyroscopes	3.87	0.35	3.73	0.52
Field Trip to Bose Corporation	3.83	0.38	3.80	0.48
Robotics	3.72	0.46	3.43	0.68
Salt Marsh Scavenger Hunt	3.67	0.55	3.17	0.75
Wacky Shoes	3.60	0.72	3.17	0.83
Forensics / Who Dunit	3.57	0.82	3.57	0.57
Sandcastles	3.53	0.63	3.27	0.64
Rehabilitation Engineering	3.24	0.83	3.50	0.78
Wind Power	3.17	0.87	2.67	0.84
Biomedical Engineering: Electrocardiogram	3.17	0.91	3.53	0.63
AM Radio / Electrical Engineering	3.17	0.79	3.27	0.79
Biomedical Engineering: Center of Gravity	3.17	0.87	3.47	0.68
Computer Orientation	3.13	0.78	2.77	0.90
Birthday Party Design	2.97	0.56	3.10	0.76
Fire Protection Engineering Lab Tour	2.87	0.73	3.23	0.73
Industrial Engineering/ Amusement Parks	2.76	0.79	2.80	0.76

* 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.

Improvement in Workshops from 2003 to 2004		
	2003	2004
Mean Enjoyment Rating (All Workshops)	3.02	3.34
Maximum Enjoyment Rating for Any Workshop (Mean for All Campers)	3.80	3.87
Minimum Enjoyment Rating for Any Workshop (Mean for All Campers)	2.07	2.76
Mean Learning Rating (All Workshops)	3.14	3.28
Maximum Learning Rating for Any Workshop (Mean for All Campers)	3.63	3.80
Minimum Learning Rating for Any Workshop (Mean for All Campers)	2.40	2.67

DISCOVERY WORKSHOPS AND OTHER ACADEMIC ACTIVITIES (cont'd)

Comments and Suggestions from Campers:

- “Maybe explain computers but give more time to try for ourselves.”
- “Have more specifications for Amusement Park.”
- “For the industrial/amusement park give some extra time.”
- “I think the rehab engineering workshop was good, but we only learned about disabilities and assistive devices. It would have interested me to try and design a way to help people with disabilities as well.”

General Comments from TAs about Academic Program:

- We should make sure the girls get computer time once each day and no more than that, especially not during snack time.
- It seems like for labs we split up a lot of the groups alphabetically by last name. Use different way.

Comments and Suggestions from Middle School Teachers and TAs:

Computer Orientation

- The girls were very excited about being able to use the computers and their new email accounts. They enjoyed this particular activity even though there were difficulties that marred its successful completion. Several of the girls experienced difficulties trying to get onto the system; either passwords didn't work or there were function problems with the computers they were working at. Warn them before hand that passwords are case sensitive, etc.
- The computer orientation should not be changed because it is obviously necessary, just not terribly interesting.
- The computer orientation frustrated a lot of girls. If possible it would be nice if they didn't have such difficult passwords.

Birthday Party Design

- This was an activity that the girls could easily relate to. As a result they paired up as requested and tackled the problem with great enthusiasm. Although they had very few problems designing the party, dealing with the decision matrix was another story. The only low point in the activity occurred when they realized that the party design was merely an exercise and that they wouldn't actually be following through with the party.

Wacky Shoes

- This was a great activity. Show slide of old fashioned shoes. How have shoes changed over time? Why? How does this connect to engineering? Also, discuss male vs. female shoes. In general, very engaging, fun, hands-on.
- I did not feel that the girls took away much information about materials from the Wacky Shoe lab, but focused much more on appearance.
- The Wacky Shoes was the most fun for the girls. (mid-program feedback)

Industrial Engineering/Amusement Park

- Hook kids by asking about negative amusement park experience. This would tap into previous knowledge. Great manipulative! Some of the girls didn't think about cost of moving rides. You could either assume they were building amusement park from scratch or give costs to move rides. Also, call attention to questions; go through handouts before giving groups the map without really reading the

handout first. The video helped put it together. It seems they could have gotten more out of this activity had they been giving a budget to work with.

- The amusement park activity did not have much teaching in it. There could be more, and they could use a fun activity like the computer game roller coaster tycoon.
- Doing computer models instead would be more interesting.
- The specifications could be made more specific.
- Could have been more fun for the girls with 3-D models, or with using the computer program Rollercoaster Tycoon, which is an excellent simulation of the same points that were emphasized in this workshop.
- This activity did not seem to teach the girls anything they didn't already know.

Biomedical Engineering: Electrocardiogram (ECG)

- Explanations were a bit rushed, a little complicated. More explanation and more time would have improved this.
- While students enjoyed the electrode aspect they didn't really learn anything that seriously pertains to biomedical engineering.

Biomedical Engineering: Center of Gravity

- Great! Very fun. Girls seemed to learn a lot from this – good illustration of center of gravity.
- Activity made them learn more about the center of gravity but not enough about how it pertains to engineering.

Segway

- Very fun and engaging, but not sure how much girls learned.

Bose:

- Great trip; a bit too much talking. Introduction could be shorter. It was a nice idea to have female engineers talking to girls – very powerful.
- Explanations were too advanced for age group.
- The girls loved the field trip to Bose, although the roundtable discussion seemed too long.

Rehabilitation Engineering

- Very powerful example of how engineering can be a helping profession. Although the girls enjoyed the activities associated with the rehabilitation engineering workshop, there was too much time spent sitting prior to the activities. During the introductory time the girls were quiet and respectful, but you could tell that they were beginning to lose focus and they were beginning to get fidgety.
- Most in my group didn't enjoy the language board.
- This workshop could have been shorter.

Salt Marsh Scavenger Hunt

- It seemed that the kids who enjoyed it enjoyed it a lot, but for the kids who didn't like the idea of stepping in the marsh and holding animals, it wasn't much fun at all. For those kids, I suggest that next year there would be more plants and other non-living things on the list.
- The scavenger hunt was a great addition.

Windpower Activity

- I think that the wind power activity took too long. The girls would have been more than happy with a longer scavenger hunt.

Sandcastle Building

- It seemed most kids thought that there was a little too much time spent on the beach on the sandcastle day.
- Make sure it is clear that each team can only collect one of each animal/object.

Fire Protection Engineering

- The fire video and simulation was interesting to the campers, but they didn't take a lot away from it.
- Seemed to be a bit beyond their attention span this year. I really think this activity depends on the group—last year's campers seemed to enjoy it more.
- Other than the fire in the trash can, a lot of the campers seemed bored by the talks. Is there anyway they could be more involved?

Electrical Engineering: Build an AM Radio

- Although the girls enjoyed the electrical engineering workshop, I feel that they would have gotten more out of the experience if they weren't led step-by-step through the building of the radio portion of the workshop. I think that they would have learned more if they were given a basic overview and then allowed to construct their radios by following the directions that were included in the kits.
- Interesting but more of a "how-to" than involving the girls in their own problem solving.
- Most were struggling to stay awake and focus. Splitting into smaller groups may work better.
- Let them follow directions in groups, but with lots of guidance from staff. I think they are capable at this age. Possibly change electrical appliance to something they can use more at home. I doubt many of them will ground the radio, and the reception isn't very good.
- Many of the girls seemed somewhat bored by this workshop.
- I liked how the girls were talked through the radio workshop but most of them seemed bored because it could have finished sooner.

Robotics

- The girls really enjoyed the robotics. The workshop was a great way to get the girls excited about careers in engineering and robotics as well as getting them interested in attending the Mass. Academy of math and science.
- Could have included a lot more information about how the robot worked.
- Less time could have been allotted for the Robotics workshop.

Forensics/ Who Dunit

- The forensics workshop was the most appealing activity. The girls were eager to try and solve it. It involved group work and decisions which goes along with the team work aspect of engineering design.
- The girls were bothered in the forensics workshop that there were 5 notes, in the future could you use larger notes and cut them into fifths?
- Fingerprinting was difficult but easiest to explain.
- Maybe do not include notes/pens in the evidence box as girls questioned the various notes.
- The TA's did a marvelous job with the forensics stations. Well organized; without glitches.
- While the girls were upset when they found out that the crime wasn't real I don't think it should be changed because the girls get much more into the activity if they think it is real.
- Change the story next year.

Based on these results, for 2005 Program: Consider lengthening Wacky Shoes from 2 to 3 hours, replacing Amusement Park Activity.

DESIGN PROJECTS

Campers' Response to Design Projects*		
	Mean	Std. Dev.
Mid-Program		
I am enjoying work on the design project	3.47	0.63
I am learning a lot from the design project	3.37	0.67
I am contributing a lot to our team's project	3.53	0.63
End-of-Program		
I enjoyed working on the design project	3.50	0.63
I learned a lot from the design project	3.53	0.68
I contributed a lot to our team's project	3.53	0.57
We produced high quality results for our customer.	3.77	0.43
The customer seemed happy with our work.	3.72	0.46

* 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.

Comments from Campers:

- “I think you should break up the design project more and work on it in the morning because I get bored and tired sitting in the class room for so long.”
- “A little less design project time, a little more free time.”
- “I learned how to make small changes that make something better and that clarifying is very important when describing items.”
- “I learned you have to be descriptive and things are a whole lot harder than it looks.”
- “I learned that you need to work with the customer.”
- “I learned more about teamwork and that it is easier doing the project with the team instead of alone.”
- “I learned that big projects even with a team are stressful but if you calm down it all comes together.”
- “I learned that time, money, a team, and respect get you far.”
- “I learned that everyone is good at something.”
- “I learned how to write better, and research.”
- “I learned how to be an engineer and how to organize a room.”
- “I learned that engineers have to do a lot of work like other people and that people need them.”
- “I learned how to write with a team, and how to solve problems.”
- “How fun and difficult a job is.”

DESIGN PROJECTS (CONT'D)

Staff Feedback about Design Projects*		
	Mean	Std. Dev.
The project scope and topic seemed realistic and appropriate for this age group.	3.70	0.48
The project provided an appropriate level of challenge for our team.	3.60	0.52
I was comfortable with the level of guidance and support given by Chrys.	3.80	0.42
I think our project team would have benefited from more guidance.	1.40	0.97
It was easy to keep our campers focused and motivated on design project tasks.	2.56	0.53
Each team member made a real contribution to the project.	2.60	0.84
Roles for team members should have been more defined or structured.	1.50	1.08
The team produced high quality results for the customer.	3.30	0.48
The customer seemed happy with the results the team produced.	3.50	0.53
The customer seemed knowledgeable about the project process.	2.80	1.14
The design project was successful in teaching girls about problem solving using the engineering design cycle.	3.70	0.48
Overall, the design project went well for our team.	3.30	0.48

* 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:

- I would introduce the teacher (site visit) ahead of time, if possible. This would make it a little easier to explain on Day 1.
- I agree that maybe some of the Design Project could be done in the am- after break time there is less ability/desire to focus sometimes (although not always!).
- I think the design project sessions would be better suited to the morning. The girls' energy level and focus would be better. Really, the only small difficulties we have faced have been keeping campers engaged and breaking down tasks. Some of this, however, reflects individual campers interest in the project.
- Having digital cameras available to each of the design teams when first visiting their customers would be helpful. The pictures taken could be later used when working through the design project and then when preparing the presentation.
- Problems were experienced during the latter portion of the afternoon when the girls were tired.
- Rearrange the schedule so that the girls work on their design projects in the morning and then go to workshops in the afternoon.
- I couldn't answer questions adequately on Day 1, so let teachers "see" the project before introducing it to the campers (only if possible).
- If time allows, maybe make a prototype model.

Comments and Suggestions from TAs:

- The team member roles are not used and are not practical to use. I like the idea of partners, but giving the girls roles has made some disappointed needlessly, so maybe they should be eliminated.

- Most did not understand the purpose of the problem statement activity. They just wanted to share initial ideas.
- The campers are kind of bored at times and this may be because there is often not something for them all to do. A more complex project may have actually been more interesting for them (Hope Lodge).
- Meet the kids before assigning design teams.
- In the birthday party design, some campers got confused with planning chart and countdown.
- Some of the girls had trouble understanding the purpose of the problem statement and goal activity (i.e., not jumping to solution). Maybe make a specific outline of what is needed (actually, it already is pretty specific).
- The girls easy get off topic, but they are motivated to get the job done.
- The roles assigned are not being used. Campers are having trouble knowing what they should be doing. Trivial details are being focused on instead of the important tasks and issues.
- I don't know whether our customer was not told or just misunderstood what the role of the girls was in the project. Peggy seemed to think that the girls would be doing all the work to make the display until we told her that whatever we were doing we were actually doing in the two weeks.
- Although team roles are a good learning tool, it is often difficult for the girls to stick to these roles because they want to be involved in all aspects of the project. So even though roles are assigned, we don't usually do anything with them.
- Our customer didn't really seem to understand our role; he treated the girls more like consults than problem-solvers or engineers. Otherwise, I think the staff and girls were very well prepared.
- At times it seemed that our project wasn't complicated as it needed to be because the girls were sometimes bored and didn't have anything to do. Consequently the girls would just fool around on the computer. A slightly more complicated project might have kept the girls more engaged.
- I don't think that more guidance would have hurt the team, but I don't think that it would have been necessary. It was easy to keep most campers focused on the design project, however some lost interest quicker than others. Our team divided into pairs, but they didn't necessarily keep roles. They switched around and did work that needed to be done.
- The campers got a lot better with focusing in the second week. We did not end up using team member roles (the ones assigned) at all. However, I'm not sure this is a bad thing, because they all ended up working on things they were stronger at. Some of the assigned roles did not apply to our project nearly as much as others.
- Enforce team roles to keep order. Make sure that the girls are doing the work, and that the TAs aren't doing it for them.
- The YWCA customers seemed very impressed with our girls' work. I am also pleased by how they worked and how they pulled the project together. All the teams did a very good job.

Based on these results, for 2005 program:

- Have face-to-face meeting with all project sponsors before the program, rather than relying on phone and mail communication. Bring along Middle School Teachers if possible.
- Experiment with having many design project sessions in morning rather than afternoon.
- Have teams define their own roles for team members.

EVENING / RECREATIONAL ACTIVITIES

Participant Ratings of Recreational Activities*		
	Mean	Std. Dev.
Movie, Week 1	3.93	.25
Swimming, Week 2	3.79	.57
Swimming, Week 1	3.72	.59
Movie B, Week 2	3.52	.70
Ice cream sundae building	3.57	.57
Movie A, Week 2	3.52	.70
Sand Art	3.45	.69
Arts & Crafts	3.45	.63
Talent Show	3.43	.68
Karaoke	3.37	.81
Teambuilding	3.37	.72
Icebreakers	3.33	.80
Volleyball	3.29	.66
Sticker Making	3.23	.82
T-shirt Signing	3.10	0.76
Girls' Night	3.07	0.98
Ornaments	2.67	1.03

* 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.

Comments and Suggestions from Campers:

- "Allow a little bit more free time and time to read at night."
- "For the movie, ask what the campers want to see so you know if people want to see the movie."
- "I think that we should have a later bed time because I can't sleep at 9:30 and I don't think most of us can. I think it should be at 10:00."
- "Have the TA's play the games too."

Comments and Suggestions from TAs:

- Having more bathrooms was nice, but I really think it would be better for the girls to be on one floor.
- Some of the teambuilding games, like Red Rover, were a bit too rough.
- The games were not always interesting for all the girls. Games such as duck duck goose may be too juvenile for them. Games that involve more thought and teamwork may be better (ex: human knot).
- Games that involved physical activity were good and kept the girls more entertained in the evenings. Arts and crafts were also very popular.
- On Sunday we played Red Rover a little too long. The giant, elf, wizard game was good.

- Tye dying shirts might be fun, if it isn't too messy, for next year.
- The games on Sunday were a little repetitive and the girls seemed to be getting bored. Some of the games were a little violent, and did not work with the girls being all different sizes (especially Red Rover).
- The girls seemed to enjoy all the evening activities. I didn't hear any complaints. In my opinion, however, we could have done something besides games on Tuesday even though the girls ended up enjoy it.
- There could be more nights that let girls burn off physical energy in their activities. Kickball was great.
- The "Girls Night In" really consisted of some of the girls doing laundry and most of the rest of them just watching TV. While it was good for them to have downtime, a more structured activity might have been better because they watched a movie the next night.
- The problems with bowling on Tuesday night could not have been foreseen so it is hard to make suggestions in this area.
- This group of campers didn't seem as outgoing and some were afraid to go up and sing during Karaoke.
- The sand art was good for the people who didn't want to do Karaoke.
- Maybe have a planning time the night before the talent show. Give suggestions of things to do.
- Make sure things are set up ahead of time. The girls were disappointed that they couldn't go bowling.
- The girls loved all of Val's movie choices. I think the girls would have enjoyed movie night if it had happened but it turned into free time instead. Although the girls had fun watching the movie or playing games on Tuesday night, they were disappointed we couldn't bowl, although this is not a fault of the program.
- On Wednesday, a lot of the girls didn't do stained glass but they had fun socializing.
- More time on Thursday could have been devoted to t-shirt signing.
- A lot of girls asked for an extended bed time on Thursday.... Next year it could possibly be moved to 10pm on the last night.

Based on these results, for 2005 program:

- Reconsider games played on first evening of program.
- Strive for balance between physical and non-physical activities.

MEASURES OF OVERALL SATISFACTION

CAMPERS

Program Satisfaction Indicators*		
	Mean	Std. Dev.
Mid-Program		
The teambuilding activities and ice breakers helped me to become familiar with everyone quickly.	3.33	0.61
The program staff are helpful and friendly.	3.80	0.41
The program is well organized.	3.73	0.52
The food is good.	3.67	0.55
Things are going well in the residence hall.	3.73	0.45
End-of-Program		
The program staff were helpful and friendly.	3.87	0.35
The program was well organized.	3.79	0.41
The food was good.	3.70	0.47
The living arrangements in the residence hall were good.	3.60	0.50

* 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

* Data not available for 1997 and 1998 programs.

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

General Program Feedback from Campers

What did you like most about the camp experience?

- “I loved making new friends that I will probably have my whole life! I was surprised that I actually loved living here too!”
- “All the stuff we got to do in the engineering labs.”

- “I enjoyed going to Cape Cod and doing the forensics workshop.”
- “Learning about engineering.”
- “I liked the different variety of activities.”
- “I enjoyed forensics most.”
- “The independence and freedom.”
- “The Segways.”
- “Playing games and designing the projects.”
- “Being able to meet people who shared some of my interests.”
- “I really enjoyed working on the design projects.”
- “Experimenting with technology.”
- “The college feeling.”
- “The scavenger hunt.”

What did you like least about the camp experience?

- “Getting up early.”
- “There was too little free time.”
- “The Cape trip.”
- “Not being able to call home more than once.”
- “I didn’t like the beds.”
- “Losing my key.”
- “The forensics crime was fake.”
- “How long the classes were because some got boring after a while.”
- “The bathrooms.”
- “Bed time at 9:30.”
- “I disliked the fact that we only had half an hour for breakfast.”
- “I did not like the talent show.”
- “I least liked that not everyone had something to do for the design project.”
- “Windmills.”
- “My least favorite part was all the stress that set in when we were approaching our deadline on the design project.”
- “I did not like the games we played on the Quad.”

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

- “Maybe have more free computer time, and less (15 min. each) time at lunch and dinner.”
- “Let us escort ourselves to breakfast!”
- “Make the rooms triples so that you get to know people better, and if one person is busy you’ll have someone else to talk to.”
- “Arrange it on days when there’s not a sports camp (long lines).”
- “Make the Cape trip more exciting.”
- “\$50.00 is a very high lost key fee and if possible, lowering it should be considered.”
- “Less class time and more free time, also more computer time.”
- “For supper on Thursday night, go down stairs in campus center for Burger King, etc.”

- “I think you should have more vegetarian food at the meals.”
- “More swimming.”
- “If someone has an allergy to something like nuts, then snacks should be reserved for them. I got stuck with a peanut butter granola bar twice and I am allergic to nuts.”
- “Next year the camp should be 3 weeks!”
- “I think the bed time should be 10 PM and there should be more movie nights.”
- “More selection of food.”
- “Next year the program should include some activity or program about environmental engineering.”
- “More physical activities in the evening.”
- “Tell the campers that the forensics workshop is not a real case.”

MEASURES OF OVERALL SATISFACTION (CONT'D)

PARENTS

Based on responses from 24 out of 30 parents to a mail survey distributed in October-November 2004

Parents' Assessment of Program Value Compared to Tuition		
The value and quality of the program...	Number	Percent
1: ... was much less than expected, given the tuition.	0	0
2: ... was a little less than expected, given the tuition.	0	0
3: ... was about right given the tuition.	1	4%
4: ... exceeded what we paid in tuition.	6	24%
5: ... far exceeded what we paid in tuition.	18	72%

Average Rating = 4.68
Standard Deviation = 0.56

Parents' Overall Score for the Camp Program		
Rating	Number	Percent
1= Poor	0	0
2= Somewhat disappointing	0	0
3= Good	0	0
4= Very good	4	16%
5= Excellent	21	84%

Average Rating = 4.84
Standard Deviation = 0.37

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

- Very pleased with all aspects.
- The experience that the campers had was wonderful and working on a real issue took the 'idea' of engineering into-- this is a real world practical application of what engineers do. I do wish that the CAD applications on the computer had been open to all the campers not just those designated as artistic or who thought they were. This is a valuable application for all the campers to have experienced using.
- I had a very tough time although not outwardly apparent while Rebecca was at camp. She had never been away from home and although I had her four brothers to keep me busy I think that more thought has to be put into encouraging (and providing more time to) write emails especially to immediate family to let us know more about how they are doing. I can understand you want them to spend a lot of time learning and don't want them to be homesick, but for families (speaking for myself) more has to be done to make parents feel more comfortable.
- I can't think of any improvements. This program is a wonderful opportunity for girls to explore science and technology. It certainly opens their minds to the mysteries of science.
- Though the agreement up front to take responsibility for nutrition was great—I'm not sure it was enforced. For the last-day photos, ensure that staff does not play favorites and that shining stars do not

take over—reinforce that everybody has value to add, and that everybody’s involvement is equally important. They are participating—the 1st step!!

- There could be a better review of dorm room conditions before the girls move in.
- This being our first experience, we can’t suggest anything for improvement. We were very impressed with how things went this time.
- You can’t improve on perfection. The only thing was that her room needed cleaning which you were aware of and addressed immediately.
- I think the program runs very well. I did miss speaking with my daughter (her mail and emails really didn’t fill us in much). Maybe a TA could at least email parents once to let us know how our daughters are getting along.
- It would be helpful for program staff to follow up with students in October, once their new school year is underway, to check in with them. This follow-up would be important to get feedback/discuss math or science course related issues. If the student were excited or having problems, this contact and encouragement would be timely and helpful. She hasn’t received any feedback on the project at Hope Lodge, such as whether their ideas were used.
- Only if you can make it more accessible to more kids.
- Use real phones for the Sunday calls. Cell phones don’t reach all areas—like ours. The health person called for more medication—when we counted out just enough. We never got the prescription bottle back. We never got our stickers that the girls made.
- Maybe the prospective participants be given more information/details about the activities/projects that they will be taking up in the cap so that they can prepare well before coming to the camp to do a much better job at the camp.
- I’d suggest an intake interview- to possibly match up roommates in a more individual manner. The cleanliness of the dorms when we got there was a huge concern for us—it did not engender much confidence.
- Let parents know that email will be available on a daily basis. Knowing that initially would have alleviated some worry. If I knew/realized they’d be swimming on the Cape, I would have worried more! Some girls that age have not been in the ocean and are unaware of the undertow.
- It’s fabulous! Our daughter would have been happy with a 3rd week.
- Burn the presentations and send them to the campers. Expand the camp and have additional age groups. Franchise the program and sell it (sell subsequent updates) to other colleges/universities across the country. Use the proceeds to fund the expansion of the program at WPI or current program.
- More communication between child and parent. They are only 12.
- I am very pleased. You have done a great job! Your patience with timing, medication drop-offs, sleeping bags, etc. is very much appreciated!
- Provide the girls with a little more physical activity.
- Keep it as is!
- Having the ability to speak with our daughter daily for me personally would have made it better. Also, girls 12 years old could use nutrition counseling. Offering that awareness at least once or twice in a structured environment while the children are away from their parents reinforces the parents’ instructions.
- It was a wonderful experience for her. I can only think that making the program 3 or 4 weeks long would make it better.

MEASURES OF OVERALL SATISFACTION (CONT'D)

STAFF

Overall Impressions and Satisfaction of Staff Members (N=10)		
	Mean*	Std. Dev.
The program ran smoothly and was well organized.	3.70	0.48
During the camp program, there was good communication between staff members.	3.80	0.42
The food arrangements were good.	3.70	0.48
Things ran well in the residence hall (TAs only)	3.50	0.55
I learned a lot from being a Camp Reach staff member.	3.89	0.33

* 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?

- “Offered a wide range of activities that were appealing to girls with diverse interests.”
- “Working with the girls and the design team.”
- “What an empowering experience for girls to have an impact on their community.”
- “The Bose trip and the fact that there are companies working with smart women, and treating them as equals.”

What did you like least about the camp experience?

- “Parking on a busy day!”
- “Sometimes it was difficult for girls to focus later in the afternoon.”
- “I would have liked to have been able to participate more fully in the workshops. Seemed more like policing than participating.”

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

- “After break a fun lab activity would be good to wind up the day.”
- “Somehow allow more time for the teachers to meet and discuss what is and isn’t working.”
- “Make sure teachers and TA’s have copies of all the activity/worksheets the campers will be completing during the workshops ahead of time so that they can be properly prepared.”
- “Adjust the schedule so that more of the design project is completed earlier in the day when the girls are more focused.”

Feedback and Suggestions from TAs

What did you like most about the camp experience?

- I enjoyed getting to know all the girls, with their unique interests and personalities.
- I enjoyed meeting other TAs that were a lot like me and we connected immediately, just like when I was at GEMS.

- I enjoyed being a role model for these girls. They are a group of very talented 7th graders. If I were to pick an activity I enjoyed the most it would be the trip to Cape Cod. I think all the girls really enjoyed this trip.
- Working with the girls on the design projects and the friendships that were developed.
- I really enjoyed working with the girls and getting to know them over the two weeks. For the campers, I like how they come out of this camp feeling confident and proud about something they have worked so hard on (design project). It really is a rewarding experience.
- Meeting new people, helping younger girls enjoy something I enjoyed at their age.
- I liked getting to know the campers and other staff members the most. I have definitely made friends with whom I will keep in touch. I also liked helping with the design projects.

What did you like least about the camp experience?

- Even knowing that TAs work all day, I had expected to have at least a little free time. I disliked that the only free time I got I had to stay up really late to get. However, I'm not sure how much can be done about that.
- The camp seems to have a very feminist feel to it, and I think some girls thought we were pressuring them into engineering, when in fact it's just an academic camp that happens to be only for girls.
- I really enjoyed most of the camp but there were times when I just wanted a break. The TA nights out were fun but it's still a lot to be with these girls 24/7.
- Not being together in the residence halls.
- I disliked waking up so early. Other than that, sometimes I became frustrated with our design project, but our team worked through it.
- It was frustrating that the TAs often had not idea what was going on because we were not informed.
- The only thing I didn't like was waking up early.

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

- The most important thing that could be done to improve the camp is to focus less on the idea that engineering is a male-dominated field. By focusing on it, a barrier is created in their minds between male and female engineers, which creates the idea that engineering might be a weird thing for them to go into and that they could be discriminated against. While obviously the intention of the camp is quite the opposite, many of these girls come into the camp simply because they like engineering, and only begin to think about themselves as female engineers in the minority during the two weeks. This problem was illustrated when, during the question period at Bose, the girls were asked the women who worked there whether they were ever discriminated against instead of questions about their jobs or about audio engineering, etc. The camp's role should be to encourage the girls to pursue an interest in engineering and not to turn them into feminists.
- Don't give the campers the impression that we're counting on them to break the biases and stereotypes towards women; that turned some of them off to the goals of the camp.
- I think it needs to be made clearer to the girls that while they are on the computers they shouldn't be fooling around and going to websites for fun. It is important to have a teacher that is a real leader and keeps all the campers involved in the project.
- Organizing the design teams so that there are not too many overpowering personalities in one group.
- We need to set the rules at the beginning of camp for the girls. For example, although somewhat necessary, it wasn't really fair to the girls to keep changing the computer times during meals: Address this at staff orientation next year?
- I think it would be helpful to the design projects if there was a basic Intro to CAD lab, so they could draw out diagrams for the project (instead of using Paint).

- Make sure TAs know what is going on all of the time.
- Spend less consecutive time on the design projects. Instead of having some days with multiple workshops/activities, it would be better to have one every day. The girls get restless and are not very productive toward the end of the design time.
- It needs to be clearer that parents cannot visit their children unless it is an emergency. A lot of the girls saw their parents over the 2 week period which could have made some of them more homesick. It also made the girls who didn't see their parents sad and/or jealous.

STAFF TRAINING

Staff Preparedness Resulting from Training and Orientation*		
	Mean**	Std. Dev.
I was sufficiently prepared to address issues related to adolescent behavior.	3.80	0.42
I felt knowledgeable about camp policies and procedures.	3.70	0.48
After staff orientation, I felt comfortable with other staff members and felt we could be an effective team.	3.70	0.48
I was sufficiently prepared to address issues related to homesickness.	3.50	0.53
I was sufficiently prepared to facilitate our teams' work on the design project.	3.60	0.52
I was sufficiently prepared for the following workshops:		
Computer Orientation	3.70	0.48
Wacky Shoes	3.70	0.48
Industrial Engineering/Amusement Parks	3.44	0.53
Segways & Gyroscopes	3.70	0.48
Biomedical Engineering: Electrocardiograms	3.00	1.22
Biomedical Engineering: Center of Gravity	3.22	1.09
Rehabilitation Engineering Workshop	3.70	0.48
Salt Marsh Scavenger Hunt	3.50	0.84
Wind Power Activity	3.67	0.52
Sandcastle Building Workshop	3.67	0.52
Electrical Engineering Workshop: Building an AM Radio	3.60	0.70
Forensics/ Who Dunit Workshop	3.90	0.32

* Shaded areas indicate improvement goals for 2005 program.

** 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 felt well prepared.
- I would suggest that in the future all the materials for the workshops, background information, as well as activity/worksheets, be given to staff beforehand.
- All prior info was useful.
- Not as much help is needed from us by campers as I thought.
- The ECG workshop was a little confusing at first and if we had known the procedure we could have been more helpful.
- The time was divided well to cover all important topics.
- The staff orientation was well done, and I felt well prepared for camp.
- Maybe we could split up the orientation so it takes 2 days instead of 1.
- Reiterate how many girls will take the Forensics very seriously (because I didn't believe Stephanie, Val, and Chrys in the orientation.)
- For all of the workshops except Forensics, we did not need much preparation in the topic. The instruction packet for forensics was very helpful.

- Most of the workshops didn't really need help from TAs, and for some of them we had no idea what was going on, however.
- I don't have any suggestions for improvement.

Feedback on TA Nights Out:

- It was a great idea and lots of fun. Much more interesting than gift certificates.
- Lots of fun. It would still be nice if we could have a night off from camp entirely.
- I liked the two TA nights out this year. They were fun.
- I had a great time at both of them. It worked out really well. Thank you!
- The Tortilla Sams/movie night was really fun.
- The TA Nights Out were a lot of fun and it was especially nice that we didn't have to pay. Thank you!

Based on these results, for 2005 program:

- Have some hands-on training/orientation for the biomedical engineering activities (electrocardiograms and center of gravity).

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	4.70	0.53
How useful were the opening day activities?***	25	4.24	0.93
How useful was the closing day parents' session?***	23	4.52	0.95
* 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			

Suggestions for how pre-camp communications could be improved:

- Possibly have a card with the steps in a checklist format (duplicating the steps shown on the wall).
- None required: pre-camp packet was great.
- All information provided was excellent and clear.
- Possibly a phone call from counselor. Her sister attended previously, so she was very comfortable.
- Great!
- Information on the check-in procedure/schedule.
- Everything has been great.
- None- well done!
- Understand phone policy, but difficult. Decision to go based on comfort of others who have gone. Otherwise, communication very good; could have used more info on Cape schedule that you handed out today or samples of previous year's schedules would have been great.
- An option to see the rooms and the facility could be scheduled prior to camp.
- It was fine.
- A breakdown of a typical camp day.
- They seem pretty adequate as is. Thanks.
- I believe that the pre-camp communication was excellent.

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

- Check-in could move quicker after unpacking is finished.
- Found both very helpful.
- I liked the tour of the campus. It gave me a feel of the surroundings that my daughter would be in for the 2 weeks. The presentations were okay; I liked the introduction of staff. Closing day I wish the technology was up and running for the slide show. However, that is a small issue. For the dinner, more mobility of students and parents to mingle, perhaps a staff person at each table.
- By the end of opening day I think everyone could have used water (which I understand was supposed to be there but something happened) and a snack—or it should be noted in correspondence to bring one. Closing day activities should have included a time when parents were told to pick up their child's medicines before they left. I drove back to the college with my children to pick them up.
- I was very impressed with both activities. Very well organized.

- The sign-in procedure was a bit confusing. There wasn't enough time allowed to "settle in" in the dorm. Need better communication on requirement for fan (you should indicate that a tabletop or floor fan would be helpful, not a window fan.) Suggest that students bring a comforter or special bedding if that would be comforting. The photos were not balanced—there were very few of our daughter and this created some hard feelings about being liked or participation.
- Opening day was a little confusing this year. I thought the closing was wonderful.
- If registration were shorter, that would have been an improvement. Closing day parents' session was great!
- The only suggestion I would make is not separating the parents and children for long periods. From my perspective it was a very anxious time for all involved.
- I wouldn't change a thing. Everything was very well organized and everything flowed. All questions were answered before even asked.
- I think it would be nice to do a family ice-breaker with the campers. The information meetings are very important, however it would be nice to get to know the staffers and other campers a little better before we leave for 2 weeks.
- An orientation prior to the first day would be helpful for parents to have a better understanding and prepare for the experience. The most useful parts of the closing day were information on engineering fields and hearing the older girls talk about their experiences. The dinner was fun.
- Perhaps having closing a little later in the day.
- Opening: better advanced site preparation. Poster or advanced list of check-in activities. Sign-in, photo ID, keys, medical. Announce problems earlier- they are more forgiving and it helps make you look less disorganized. Program and registration delay was awful because, as you noted was physical plant's fault. Proselytizing for Mass Academy (at closing day parents' session) was inappropriate.
- Include in orientation materials (pre-camp mailing) that the girls can bring blankets and personal items for the dorm room. It was unseasonably cool and we did not know what her bedding would be. The phone call home should have been in a private setting and actually for the 10 minutes, as was arranged.
- They were both very well done. The opening day sessions was probably about 45 minutes too long (by then, I was having a hard time keeping the tears hidden). May be helpful to have some young (8th grade) graduates attend to reassure parents that it is a great and well-supervised program.
- Having the high schoolers speak of the high school program was very good. Closing dinner was too long—long wait before dinner was served, etc.
- The lines were long during the first day, maybe have a staggered check-in.
- A program ahead of time for allowing better planning of our time.
- I spoke to many parents who were interested in my other daughter's experience 5 years ago and seemed somewhat eased to talk to one who has "been there" (and survived!) Sometimes, assuring, even with humor, that the kids will survive sounds patronizing and can be unsettling. Perhaps it is just part of the parent learning curve!
- Everything went well and the staff handled the mishap of rooms not being ready well.
- Leave it "as is."
- More organization was need on check-in day to avoid the long lines, because it seemed to consume time that could have been spent on more productive discussions.
- It all went very smoothly.

Based on these results, for 2005 program:

- Continue to work on streamlining the registration/check-in process and making sure that setup of registration tables occurs sufficiently in advance.