Camp Reach 2005
Annual Report
Evaluation Addendum

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EFFECT OF PROGRAM ON CAMPERS

Comparison of Pre Program vs. End-of-Program Camper Questionnaires			
	Mean		*p*^
	Pre	Post	
Interest in and Knowledge of Engineering			
I find engineering and technology to be interesting.*	3.32	3.71	.001
I have a good understanding of what engineering is.*	2.82	3.36	.001
Motivation Toward Education			
I am looking forward to math and science courses in middle school and high school.*	3.43	3.61	.202
I have given a lot of thought to my future career.*	2.82	3.07	.148
Confidence, Efficacy, and Self-Esteem			
I could be an engineer if I wanted to.*	2.93	3.57	.000
Skills rating[#]	71.3	78.7	.000
Self-esteem score[†]	36.4	38.8	.003

^ 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.

* Responses were given on a scale of Strongly disagree = 0; Disagree =1; Neutral = 2; Agree = 3; Strongly agree = 4.

[#] 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.

[†] 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.

Campers' Answers to "Describe Engineering in Your Own Words"		
	Opening Day of Camp Reach	Closing Day of Camp Reach
1	I don't know.	When people try tons of different things to improve something.
2	Inventing things and manufacturing.	Engineering is a job that you create easier methods and objects to make life easier. Like making machinery for hospitals, making alarms for fires, and making better sound equipment.
3	Engineering is building or creating something.	Creating, understanding and building different things.
4	Building things.	Building things and understanding how they work.
5	I think engineering is creating things in your own way.	Engineering is building and improving things in everyday life.
6	It is when you're building or taking things apart.	Helping people by building things.
7	Engineering is designing things and how they work.	Engineering is solving problems and designing different solutions.
8	Engineering is making something to improve technology.	A person who designs something to solve a problem.
9	I don't know.	Engineering is making solutions to simple problems anyone

		and everyone face everyday.
10	It's cool.	Engineering is many different types of things. You can create ideas, you can build, and you can work with many different types of technology.
11	I think it's the building of things.	It is finding answers to problems and building things.
12	Building or designing things.	Engineering is building and designing stuff to solve a problem.
13	Creating solutions for everyday problems.	Solving everyday problems.
14		
15	Engineering is how things are built and how they work.	Engineering is the work of men and women to build things to make tasks easier.
16	Engineering is building things using technology and design.	Engineering is solving everyday problems using technology.
17	Describing and testing your predictions to come to a conclusion.	Designing stuff, making new things, interesting, fun.
18	Interesting, fun problem solving.	Engineering is creating things to help people in their daily lives.
19	Engineering is fun, and creating original ideas and building them into something useful.	Engineering is using the math and science processes to solve everyday problems.
20	The math and science behind the way things work.	Engineering is the solving of everyday problems using math and science.
21	Creating things that make people's lives easier and less complicated.	Engineering is creating things to make daily life easier.
22	Developing of new products, cures for diseases, and robotics.	Engineering to me is building and inventing new products used in everyday life.
23	Science and technology.	Math, science, technology, problem solving, cool.
24		Engineering is the solving of everyday problems.
25	Engineering is when you build things, but while you build, you organize, rearrange, and it has to do with science and math.	Engineering is when you solve everyday problems with the help of modern technology.
26		
27	I don't know.	Engineering is building things and putting them together.
28	Understanding how mechanics and technology work and making them better.	It is solving problems of everyday life, making things work better, and HAVING FUN!

Wilkoxon Signed Ranks Test* of Engineering Descriptions		
	Number	Signif.
Pre: Did not mention engineering as a helping profession Post: Mentioned engineering as a helping profession ***(Positive Change)***	5	*p= .025*
Pre: Mentioned engineering as a helping profession Post: Did not mention engineering as a helping profession ***(Negative Change)***	0	
No change in mention of helping from Pre to Post	23	
Pre: Did not mention engineers as problem solvers Post: Mentioned engineers as problem solvers ***(Positive Change)***	12	*p=.002*
Pre: Mentioned engineers as problem solves Post: Did not mention engineers as problem solvers ***(Negative Change)***	1	
No change in mention of problem solving from Pre to Post	15	
* 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?

- "Not really."
- "Camp Reach changed my opinions by showing me the different types of engineering."
- "I thought that engineering was something I wouldn't consider for a career, but camp reach helped me understand what engineering really is and I'm considering majoring in engineering in college."
- "Yes, I learned that engineering can be fun."
- "When I came to Camp Reach I liked science and engineering but now I love it! I understand engineering a lot more now."
- "It showed me that engineering is fun and you can do many different types of engineering."
- "I have always been interested in science and engineering. Camp Reach has made me become interested in a few different types of engineering that I didn't really know about before."
- "Yes, I know more about engineering and I think now that I know more about it I like it. I like engineering more than when I came to camp."
- "Not really, I've always loved both, I came here because I thought it would be nice to go to a summer program that offers my favorite subject. It was an excellent experience."
- "It has showed me that right now I'm doing what I want and not what someone's telling me."
- "Yes it has. Before I thought engineering was only about building things, and now I know it's a lot more than that."
- "The camp sounded fun, but I wasn't into engineering. Now, engineering is definitely an option for me."
- "Yes, I know now that engineering is a lot more fun than it looks."
- "It made me understand engineering."
- "Yes Camp Reach made science and engineering more fun and not so typical but more out of the ordinary."
- "I find science more interesting, but it's impossible for me to love engineering more than I already do!"
- "It has given me a better understanding of engineering."
- "It has. I am now more interested in the way things work. I think this year's math and science will be really fun."
- "Science and engineering can be very fun and exciting."
- "Yes I now realize the difference I could make by being an engineer."
- "Yes I have a better understanding of what engineering is."
- "Yes it's encouraged me to look more into being an engineer when I get older."
- "Yes, I always thought that engineering had to do with computers and building. But it has to do with a lot more."
- "No."
- "No, it hasn't changed my views. I have always like math and science, and Camp Reach has only enhanced my interest."
- "Yes I learned there are different types of engineering and girls can be engineers and do any type of engineering."
- "Now I know how different engineering is from what I thought it was, it looks fun!"
- "Yes, I have a much better understanding of what engineering actually is, and since I know that it is much more interesting to me."

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

- "Not really."
- "A little on showing me the different types of engineering."

- "I am now considering being an engineer as my career."
- "Yes and no, I still want to be an actress but I could be an engineer if I wanted to."
- "I still want to have a career in engineering."
- "I like marine biology but engineering is fun too!"
- "Camp Reach has caused me to think about some other types of engineering I hadn't heard much about previously."
- "It has because before I came I just wanted to be an architect but now I know it would also be fun to be an engineer."
- "Not really, I've always loved the idea of helping people out. Since I was little I wanted to design/build houses. I think this camp has only made me want to follow through with my dream more."
- "Yes, it has showed me I do want to be an engineer and what type I may choose."
- "Yes, it has. Before I didn't really know what I wanted to be, and now I'm sort of leaning towards engineering."
- "Well, I had a list of careers, including writing and designing, I still have that list but now engineering is on it! J "
- "Yes. I never knew there were so many fields to engineering."
- "No."
- "Yes, I am not so much more interested in engineering and science than I was before. I now want to be a marine biologist as opposed to a model."
- "Well I want to be a lot of things when I grow up: 1. a doctor, 2. an architect, 3. a robotics expert, 4. a director. I have always wanted to be an architect, but Reach made me want to be a robotics expert or have something to do with engineering."
- "Yes/no. Before I didn't care about engineering but now I have no clue what I want to be because it's between engineering, dancing, basketball, and a doctor."
- "Not really. I still don't know what type of job I would like."
- "I don't know."
- "I'd like to be so many things right now, engineering is high on my list though."
- "No I'm not sure what I want to do."
- "Yes, it's encouraged me to look more into being an engineer when I get older."
- "A little bit. I've always wanted to be a pediatrician, but now I'll either do that or become a computer engineer like my parents."
- "No."
- "Yes, it has turned me to want to maybe be an engineer. Maybe."
- "Yes, I could there are more possible jobs that engineers can do then just a few. Engineers can get a lot of different jobs and use it as a base in their careers."
- "Well, I really want to be a doctor even though it would be fun to be an engineer."
- "Yes, as stated above, engineering is now a more interesting field to me, so being an engineering is a career option for me now."

Effect of Program on Campers: Parent and Teacher Perspectives

Parents' Assessment of Daughters' Attitudes and Abilities* (N=20)			
	Mean**		*p*^
	Pre	Post	
Self-confidence	3.83	4.05	0.33
Interest in engineering, science & technology	4.08	4.15	0.77
Motivation toward education, learning, and achievement	4.35	4.68	0.20
Ability to work with others	4.35	4.48	0.62
Interpersonal communication skills	3.90	4.00	0.67

* Parents completed these assessments on opening day and in a questionnaire completed in October or November (approximately 3 months after the camp.)

** Parents rated each characteristic on a scale of 1= Very low; 2= Somewhat low; 3= Average; 4= Moderately high; 5= Very high.

^ 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 (highlighted in yellow above) are generally viewed to be statistically significant.

Teachers' Observations of Campers' Attitudes and Abilities* (N=28)				
	Initial Assessment**		Change during Program***	
	Mean	Std. Dev.	Mean	Std. Dev.
Interest in engineering, science & technology	3.68	0.94	3.86	0.80
Motivation toward education, learning, and achievement	3.64	0.78	3.57	0.79
Ability to work with others	3.89	0.74	3.54	1.00
Interpersonal communication skills	4.43	0.92	4.43	0.88
Self-confidence	3.68	0.72	3.71	0.81

* 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

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

- She wants to pursue a career in science and engineering and perhaps even applying to WPI. More interestingly, is that she has found other girls who are good in science and share the same goal.
- I believe my daughter is very proud of herself for going away for the first time and enjoying herself so much. She speaks now of continuing with the summer programs and maybe even looking toward Mass Academy.
- She is thinking more about engineering careers than she did in the past. The camp experience made her value the importance of math and science in her present day studies.
- She seems a little more organized this year in school. She is doing well in math and has been very excited about science projects this year. She finished assignments before they're due. Let's hope it keeps up.

- My daughter loved camp, she still talks to some of the girls and has gained confidence in herself. The program had a fantastic effect on her. Thank you!
- She now says she "loves" math—I believe that was the influence of her roommate [Name]. She got a lot of self-confidence in her intellectual abilities in the 2 weeks she was at camp.
- She has more confidence being on her own. She has a clearer understanding of the different types of engineering careers.
- [Daughter] has sooo much more confidence since returning from camp. It seemed that she grew up after the camp was done. She is keeping an open-mind about her future—she is now considering many more engineering fields.
- She is proud to be a Camp Reach alumnus!
- Camp Reach had only positive effects on [Daughter]. She still talks about all that she did there. Her vocal skills, presentation skills and interaction with people have all improved. Her interest and understanding of science has improved too.
- [Daughter] has said that Camp Reach changed her life in that she now sees the opportunities the world has to offer. She found it really interesting to meet girls from many different backgrounds and she is much more interested in pursuing new and different opportunities to learn as well as meet new people. I have definitely seen more self-confidence in her as a result of the program.
- Opened her eyes to an area of potential career choice and also to just an area of knowledge about which she was unaware. Also it let her know that she could survive and enjoy a fairly long period of time without her parents—increase in confidence and self-sufficiency.
- [Daughter] really liked the camp and is a seasoned "camper." She liked the pace, opportunities, and interaction. She did not much care for getting up early.
- [Daughter] has socialized with some of the girls since camp. She is more independent now!
- She is taking a Tech Ed. Class at school and LOVES it. She feels confident and able in the class—she even built a bridge that was one of the best designs in the class. She also mentioned being able to apply what she learned at camp in science class. She also says she wants to teach engineering when she gets older.
- She feels like it was a special experience which she had that not too many others have had. The interviewing was good for her. Her eyes were opened to the wide variety of possibilities available to her.
- Became more confident and eager to learn. Became more independent.
- Wants to try for special high school. Wants to pursue engineering career. Likes to do community service. Came home excited and happy, more independent. Gave [Daughter] a bracelet to remember Camp Reach and her goals. She wears every day. Engraved with date and camp name.
- [Daughter] wanted to be an architect, now she wants to learn more about other careers in engineering.

STAFF DEVELOPMENT GOALS

Effects of the Camp Reach Program on Staff Members		
	Mean	**Std. Dev.**
As a result of Camp Reach 2005 I have a better understanding of engineering. (All Staff)	3.64	0.67
I will be able to adapt design project or workshop activities or approaches in my own teaching (Middle School Teachers Only)	3.67	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)	3.67	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 really enjoyed seeing the campers experience the excitement and fun of learning. I appreciated learning more about other fields of engineering myself as well."
- "I'd have to say learning about the whole design project process along with the girls."
- "As a teacher most of the time we are very focused on "control." I think it was great to work with such a young group and give up some control and trust that they could get the job done."

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

- "There are many items that I will share with other teachers at school, especially science. The graphic of the Engineering Design Process was very clear and explains the engineering thought/design process well. Some of the labs could be useful supplements to our curriculum at school like the Crystal radio and the center of gravity."
- "To begin with the ice breaker and brainstorming resources will come in extremely handy! I learned a lot of games and songs I didn't know. Also, the decision matrix and task planning sheets will be useful to many of my 7th graders."
- "I really enjoyed thinking in terms of "specs"-I would use the ice cream sundae activity; the engineering design process to perhaps work with a class on a larger design project. I hope to learn more about all the robotics opportunities to get kids involved in. I'd take a class to Bose-great tour! The wacky shoes design process was really great too."

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

- "The Camp Reach program was very valuable to me because it helped me understand why I went into engineering in the first place. In theory, I love engineering. Unfortunately, I did not find engineering to be as creative and exciting in practice. I have been hesitant to encourage young people to enter some engineering fields recently, and now have a new perspective. Thank you!"
- "I feel much more confident in my understanding of what engineering is and the multitude of jobs that engineers can have. I had no idea how exciting a career in engineering could be."
- "I wish I had gone to Camp Reach! I think at the girls' age, I would have loved it and would have turned me on to engineering as a career. I feel like I have a significantly greater appreciation for engineering and can be a strong advocate for the field to kids."

Comments from High School Teaching Assistants

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

- I've learned a lot about living and dealing with younger children. It was interesting having to balance an authority figure and friend.
- Personally, the most valuable aspects of the program was getting a taste of college dorm life as I will be leaving for college in a couple of years and developing hopefully lasting relationships with both campers and staff alike. Being a camp reach TA has affected my personal development by helping me to become a better role model and by keeping up my enthusiasm even when I am really really tired!
- I have learned a lot about myself being here. I am proud of myself for staying here two weeks but more important I have been further inspired to have a career in science. I am more aware of what an engineering degree means and of the kinds of jobs it would offer me. The choices like Bose and forensic science were interesting highlights of the program.
- Reach has helped me be more responsible and open to new things. Working with the girls has given me a better sense of kids considering how I want to be a teacher.
- I don't think being a TA has affected my personal development per se, but it has affected my knowledge of the age group and how much these girls actually do look up to you as a role model, which I think is awesome.
- I enjoyed having all of these young girls around me that were eager to learn new things. This just served me as an example to how I need to be whenever I start something new.
- It helped me practice skills I don't typically need when working with kids my age such as patience.
- Just being with the girls helped me learn how to be a better role model.

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

- I'm considering looking into other degrees in engineering because of this camp.
- I think that when I was a camper my attitude changed about engineering. Attending Mass Academy and acting as a TA this year just reinforced my feelings and interest in engineering.
- Camp Reach helped me to learn more about how much detail goes into mobilizing a person with a disability. It also highlighted that nothing in the world could be used or a task can not be finished if there wasn't some sort of engineer. Even with the simplest things like brushing your teeth, you need engineers to produce toothpaste and the brush.
- Now being 16 and now redoing many of the activities have become a little bit clearer as I have learned about some of the stuff in school. This new found understanding has made engineering clearer and more appealing.
- I understand that engineering has much more to offer than I originally thought.
- I am more aware of how it is used in the real world and I am more interested in studying it in college.
- My knowledge has definitely grown as a result of the camp reach program but unfortunately my interest in engineering hasn't grown enough for me to pursue it as a major.
- Having gone through this process once before and now I see the importance of the design process and how best to tackle engineering problems

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

- This program has caused me to think about whether or not I want to come to WPI and whether I want to do mechanical engineering or not. I don't know about the first one yet but for now I think my major will be ME.

- This program has caused me to think differently about the type of career I might be interested in because it has caused me to examine my career choices, consider my options, and make room for change.
- I knew that I wanted a career in science but I did not know what subject. Engineering is higher on my list now because the careers seem exciting and enjoyable to do everyday.
- No, I still know that I want to be a special ed teacher. While I have learned a lot these 2 weeks, my choice in career has not changed because I knew before this exactly what I wanted to be :)
- Being a staff member wasn't about learning about engineering for me, but rather recreating the experience that I had when I was a camper for younger girls. During my weeks as a camper, I became more interested in science and engineering and wanted to show girls that it's ok to like this kind of stuff.
- This program hasn't changed my plans for the career I want, it actually strengthened my choice for a career. Camp Reach showed me how much I like to be around people, talk to them, and see how I could help them.
- This program helped me consider the different types of engineering I may be interested in that aren't typically offered or considered.
- I'm considering looking into degrees of engineering because of this camp.

Comments from Residential Advisors

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

- I would like to be a pediatrician and working with the girls has honestly fuelled that desire even more. I am more determined to get there.
- Assuming responsibility for such a large group of high/middle school students has helped give me some more confidence in myself.
- It has improved on my responsibility, leadership, authority, and "conflict" skills. My job was a lot of dealing with the behind the scenes reservations and so forth. I learned a lot about how to deal with people or groups who may not be reliable, or show up when expected to. I think this has helped my communication skills by teaching me more effective ways to deal with conflict and has prepared me for "real life" work. Also, I connected with the girls and really enjoyed being around this age group. They taught me a lot about how it's ok to be "silly" and it is still fun to run around and play games and do arts and crafts. J

EFFECTS OF CAMP REACH ON FAMILIES

Effect of Program on Parents' Understanding of Engineering (N=20)			
	Mean		*p*^
	Pre	Post	
I/we have a good understanding of engineering and engineering careers.*	3.65	4.05	0.19
* 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:

- We are very impressed with the staff and facilities at WPI. Camp Reach gives us an opportunity to learn more about WPI and its programs.
- The program helped me realize the opportunities my child could pursue for academics.
- [Daughter] has a fabulous math mind and I would like to see her pursue a career in Science/Technology.
- We all saw various areas of engineering by reviewing her schedule. Areas we didn't know existed. It was nice to have an educational yet fun experience at a summer camp.
- It was the first time she was away from home. I think it helped strengthen her family values not to take things so much for granted.
- We were happy to see girls excited about science and engineering.
- Makes me think more positively about WPI.
- Younger siblings cannot wait to go to similar programs. Our 11 year old son wished there was an engineering program (like Camp Reach) for boys. J
- The program made us realize how important it is to college and career experiences and choices.
- We were highly impressed with the quality of the program and dedication of all the faculty and participants. We liked the topics chosen and the way that the entire camp was set up—both fun and academic.
- I am more actively looking for additional programs that will expose her to the math and sciences.
- Put our daughter into a situation where she had to use her strengths and overcome some fears. Let me as a mother know that she can be capable on her own.
- [Daughter] talked about it at Frances Parker Charter Essential School how their "Challenge of the Week" problem was like WPI group projects.
- I will encourage her more in math and science and have her consider attending Mass Academy.
- Not too much direct influence—we were just happy that she enjoyed herself.
- Opened our eyes to all the different engineering careers.
- Help to allow to do more independent activities. Saw as more mature due to surviving 2 weeks away from home. Will help provide future opportunities for engineering.
- We were impressed by the professionalism the girls displayed in their presentations.

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	3.96	0.19	3.73	0.45
Field Trip to Bose	3.82	0.39	3.86	0.36
Robotics	3.79	0.50	3.57	0.63
Wacky Shoes	3.78	0.51	3.31	0.79
Forensics / Who Dunnit	3.74	0.59	3.81	0.49
Sandcastle Building	3.71	0.53	3.57	0.63
Un-Birthday Party Design	3.62	0.50	3.15	0.78
Biomedical Engineering: ECG	3.44	0.70	3.50	0.65
Rehabilitation Engineering Workshop	3.36	0.73	3.61	0.57
Electrical Engineering: Building an AM Radio	3.32	0.72	3.54	0.58
Salt Marsh Scavenger Hunt	3.25	0.84	3.14	0.76
Fire Protection Engineering Lab Tour	3.21	0.63	3.50	0.58
Biomedical Engineering: Center of Gravity	3.19	0.62	3.54	0.58
Computer Orientation	3.15	0.86	3.00	0.85
Wind/Tide Power Activity**	2.82	0.67	2.75	0.80

***** 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.

** Most participants did not get to follow through on testing their wind turbine designs because of lack of wind.

Historical Progression in Workshop Ratings*			
	2003	2004	2005
Mean Enjoyment Rating (All Workshops)	3.02	3.34	3.48
Maximum Enjoyment Rating for a Workshop	3.80	3.87	3.96
Minimum Enjoyment Rating for a Workshop	2.07	2.76	2.82
Mean Learning Rating (All Workshops)	3.14	3.28	3.44
Maximum Learning Rating for a Workshop	3.63	3.80	3.86
Minimum Learning Rating for a Workshop	2.40	2.67	2.75

*Several workshops were significantly re-vamped after the 2003 program.

DISCOVERY WORKSHOPS AND OTHER ACADEMIC ACTIVITIES (cont'd)

Comments and Suggestions from Campers:

- "I would like more time for the electrocardiogram activity and to do more in it."
- "Wacky shoes: have enough material to make a pair!"
- "Let us go longer on the segways. Don't ever get rid of any of these activities."
- "More hands on activities and actually building things."
- "I think camp is really fun!! All of the activities are really interesting and exciting to learn about."
- "Try to make the very beginning of wacky shoes more interesting."
- "Wacky shoes and segways were a lot of fun!!"
- "Computer orientation you may not want to make as long; much of it can be explained in a shorter time slot. I do enjoy morning computer time. I would like that longer."
- "The design projects are sometimes a little boring. Rearranging shelves isn't my idea of engineering."
- "I would have liked to know a little more about the heartbeat machine, possibly a lot more time for it?"

General Comments from Midde School Teachers and/or TAs about Academic Program:

- This week's activities were both educational and enjoyable. All the presenters were knowledgeable about his/her field and the hands-on aspects were particularly entertaining. It's difficult to be able to keep 28 twelve year olds' attention for an extended period of time and I did notice many girls drifting off during the lecture portions. If the lectures were more interactive I think the girls would pay better attention and ultimately learn more.

Comments and Suggestions from Middle School Teachers and/or TAs:

<u>Computer Orientation</u>

- "While the computer orientation is important, there are ways to make the workshop more enjoyable and interactive."
- "I don't think the campers really enjoyed the computer orientation just because it seems boring to them compared to other things on the agenda. While I think the orientation is essential, many of the girls think they could have handled it on their own."

<u>Birthday Party Design</u>

- "The unbirthday party design was fun for all to design but some were a little sad when theirs didn't 'win'."

<u>Biomedical Engineering</u>

- "The ECG lab was relatively chaotic for my group. I think there was inadequate explanation of instructions and the application."
- "Some of them didn't enjoy the ECG activity mainly because of the sticky things and they probably didn't learn much because it was a little hard to understand."
- "Biomedical engineering was very informative but the activities didn't seem as exciting as the others like wacky shoes."

<u>Rehabilitation Engineering</u>

- "In the rehabilitation engineering workshop, there wasn't really enough time given in order to do the activities. I think that next year maybe we could somehow have more time for the ramps and wheelchairs part."

- "Rehabilitation presentation was informative but not most exciting. "More hands on activities with the disability workshop, less lecture."
- "I believe the students learned a lot in portions of the rehab engineering workshop, especially in the "scavenger hunt" part. The computer lab section of that workshop was too long and the girls lost interest. I believe the rehab lab could be completed in about 2 ½ hours."
- "Would have been really helpful to have this one much earlier due to the nature of our project. Also, the campers (and I) had difficulty understanding the handicap accessibility ramp chart distance + slope."

Salt Marsh Scavenger Hunt

- "We needed buckets for the salt march scavenger hunt."
- "While some girls enjoyed picking up the creatures, others were completely disgusted. Also the girls knew they just had to match what they found to a picture on the sheet which really didn't promote learning."
- "Everyone seemed to love the salt marsh scavenger hunt but there was a lot of quicksand parts and some of the girls got scared when they got stuck in it so maybe next year there could be off limits areas. Also clearer crab pictures might also help distinguish one crab from another because there was some trouble with that as well."
- "They enjoyed the scavenger hunt a lot but didn't really learn anything new from it. Some of the girls loved the scavenger hunt, but many were grossed out so I think about half didn't enjoy the wading through the ooze. I might have included a device to hold or catch the animals."

Windpower Activity

- "This seemed rather unorganized and chaotic. I don't think the girls recognized the purpose of this activity."
- "The wind activity would have been more fun with more wind and I think that they should have discussed wind patterns and dynamics more."
- "I noticed that some of the girls were bored during the wind/tide power activity. Not all of them, but enough so that I noticed."

Fire Protection Engineering Lab Tour

- "I am not sure if the students fully understood all aspects of the fire protection lab tour, especially the camera that shows different temperatures. (They were distracted here by trying to see what they looked like in different colors.)"
- "Explanations were lacking a bit on to what we were seeing/doing."

Electrical Engineering: Build an AM Radio

- "The girls would have enjoyed this activity and absorbed the material had it been presented in a more interesting manner, not lecture."
- Radio presentation was not as engaging as other activities but still interesting."

Based on these results, for 2006 Program: No major changes needed. Continue working with workshop leaders to minimize listening and lecturing, increase interaction and activity. Consider developing an environmental-related workshop to substitute for one of the biomed-related activities.

DESIGN PROJECTS

Campers' Response to Design Projects*		
	Mean	**Std. Dev.**
Mid-Program		
I am enjoying work on the design project	3.63	0.49
I am learning a lot from the design project	3.56	0.64
I am contributing a lot to our team's project	3.67	0.62
End-of-Program		
I enjoyed working on the design project	3.50	0.69
I learned a lot from the design project	3.64	0.56
I contributed a lot to our team's project	3.68	0.55
We produced high quality results for our customer.	3.75	0.44
The customer seemed happy with our work.	3.89	0.31

***** 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 about what they learned from design projects:

- "I learned that you have to use teamwork to figure something out with other people."
- "I learned a lot about working in teams and depending on other people. I learned how to make decisions with a matrix."
- "I learned how to work in a design team and how to deal with problems along the way."
- "The matrix. The steps you have to take. Patience. Trust team mates."
- "I learned that engineering needs a lot of hard work and components and teamwork."
- "I learned more about contribution and teamwork"
- "I learned that you really need a lot of stuff to make a house run and I also learned how CMHA/Donations Clearinghouse runs and I learned about their organization."
- "I learned all the steps to solve a problem. I also learned that teamwork is a large aspect of this project."
- "I learned a lot about the process of design engineering."
- "I learned how to co-operate well as a team, and how to use PowerPoint. It was fun, and I learned as well!"
- "How to work with others. Use AutoCAD. What it is like when you're in a group and you have deadlines and requirements. How to use a decision matrix and more."
- "I learned a lot about how engineering works, the different types of engineers, and the great feeling you get when you find something you've been looking for for days!"
- "I don't know decision matrix"
- "I learned that when working on a project it is better to have more opinions. I also learned that organization isn't as hard as I thought."
- "That there are a lot of programs for the handicap."

- "I learned that Microsoft had a magnifier and a narrator. I learned that there are track ball mice."
- "I learned about the design process and about different steps in engineering something."
- "I learned how to use power point and I learned more about excel and I learned more about the design process and I learned how to put your thoughts to action."
- "How to work in a large team (8 girls). Learned how to use the process (engineering design process) to make things easier. Learned how to use "AutoCAD"!"
- "I learned how to work with different types of word programs"
- "I learned how to use AutoCAD and how to work with a team. I also learned how to pick the best ideas out of many."
- "I learned how to work better in a team and how to solve problems better. Such as our curtain dilemma, we resolved it by designing something."
- "I learned how to work as a team and divide up tasks."
- "I learned that everyone is different and works differently."
- "I learned how to work in a strong team and how to use AutoCAD (sort of)."

Staff Feedback about Design Projects*		
	Mean	**Std. Dev.**
The project scope and topic seemed realistic and appropriate for this age group.	3.36	0.50
The project provided an appropriate level of challenge for our team.	3.55	0.52
I was comfortable with the level of guidance and support given by Chrys.	3.55	0.52
I think our project team would have benefited from more guidance.	1.36	0.81
It was easy to keep our campers focused and motivated on design project tasks.	2.64	0.81
Each team member made a real contribution to the project.	3.00	0.89
Roles for team members should have been more defined or structured.	1.55	0.93
The team produced high quality results for the customer.	3.09	0.30
The customer seemed happy with the results the team produced.	3.18	0.40
The customer seemed knowledgeable about the project process.	2.18	0.40
The design project was successful in teaching girls about problem solving using the engineering design cycle.	3.73	0.47
Overall, the design project went well for our team.	3.91	0.30

* 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:

- "As a team we decided that it made more sense to define distinctly different role next week. Currently we are all design/project engineers researching and refining our alternatives. Next week we will redefine rolls as we prepare written and oral presentations, cost estimates, final plans, task lists, etc. Week one schedule- we had a little too much time during the un-birthday party sessions."
- "My group did not encounter any difficulties picking roles. Certain members realized quickly that we could choose from the list but we did not have to be in that "exact" role. Also, they realized that many

of the jobs/roles overlapped a lot. I think it was a productive and more meaningful to give the girls a chance to pick their own roles rather than assign specific ones."

- "Because our team had so many interviews- and these were great- we often did not have enough time to regroup at the end of the morning and monitor progress. Also, because of all the interviews, we had great difficulty in staying with our original roles- we all needed to be flexible and the girls have been great with this. I have had to, for the most part, assign roles each day depending on what needs to be done… I didn't feel as though I have enough time to let the girls decide this for themselves. BUT, I feel that it has been working just fine. However, I probably should be emphasizing the official roles, titles, etc. a bit more."
- "I think scheduling the design projects in the morning was great because the girls were energetic and focused. While I was comfortable with the level of guidance from Chrys, I believe our project could have been better with another person's feedback at various points along the way. (I always think this is the case, regardless of the project.) While I think it is useful for the girls to know that engineers have different roles within a project in the real world, it would not have made sense for us to assign the roles outlined in the handout. We did not fill out the pink sheet because of this. The girls on our team had roles that were defined at the beginning of each design session and these roles changed 2 or 3 times. The 2nd and 3rd columns in the specifications sheet did not make sense for most of our specs. The girls seemed to understand our specs without these columns. The client clearly understood what to expect from our team and they were very positive and complimentary. The girls felt very good about their work after the interim project visit. The project was a great one for the camp and I think the girls really enjoyed it."
- "I liked the fact that we did not have to assign specific roles to the girls, but at the same time I think more definitive roles would have been helpful. Perhaps if we were more diligent at assigning roles each day or at least reiterating them daily we could have avoided some girls drifting off. I think the morning hours were great and the computer lab and Rm. 116 met all our needs. I don't have any other suggestions because I feel that our project went very well for the most part."
- "We had to narrow the scope ourselves to keep it realistic. It was difficult to assign roles for the girls that they could have for more than a day or two due to the heavy research nature of our project. Also, with different interview squads leaving each day, we couldn't afford to lose valuable time if someone with a specific role was missing. But I think the girls did a great job adjusting to the changes each day- they were very flexible and I think learned a lot. They may not have had the engineering process driven home to them as much as the other teams but I do think they really enjoyed our project."

Comments and Suggestions from TAs:

- "Girls like choosing their own jobs for the project and having some input on what they wish to work on."
- "There are assigned positions in the group but in any situation there are different personalities including 'take over' attitudes."
- "Our team came up with a list of important roles for our specific topic. They were more detailed that 'Project Engineer' and seem to work well with our team. Everyone has an important job and it seems more effective than jobs like 'Schedule Manager' because they might not have too much research to do."
- "Allowing the girls to brainstorm the necessary roles was positive and allowed them to think about something new and different. This task did take up some valuable time but is still beneficial because the roles appropriately fit our project."
- "I think that its good to have the morning meeting with Chrys and I think Aileen's doing a good job with the girls."
- "Our group, CMHA, had little to no problems. Everything went very well :)"

- "I loved working with Aileen-she was fun and kept the girls in line without seeming harsh."
- "The topic was very challenging and the room presented a lot of problems but our team was very engaged in the project ideas. The un-defined team roles helped us allow everything to be done fairly because we could tweak them each day. The customer seemed impressed with our design but because we don't have the money they may not be able to do it."
- "We always stayed on task but since we had so many different personalities there were some moments when we had to remind the girls not to get off track."
- "Our project team had enough guidance but it was difficult at points to keep some of the campers on track. Some team members definitely made bigger contributions to the project than others. The roles for team members could have been more defined and structured because it took so long for the girls to come up with the different roles and then stick to them because the roles were so loose. If they were better defined and structured maybe the girls would also find it easier to stay on track."
- "Hope Lodge would have been easier if we could have focused on one storage space, not 3. This separated the girls and didn't allow them to work together most of the time."
- "The campers got distracted very easily but the MST (Aileen) did a really good job with them."
- "The team worked well, but liked to get off topic."

Based on these results, for 2006 program:

- Continue having design project work in the morning rather than the afternoon, or mix if necessary.
- Emphasize during staff training the need to help girls (re)define tasks and roles on a daily basis.
- Continue having face-to-face meeting with all project sponsors before the program, rather than relying on phone and mail communication. It doesn't seem necessary to bring along the Middle School Teachers to these meetings, but that may depend on the individuals.
- Consider developing an Auto-CAD tutorial, especially if all project teams need to produce floor plans or similar drawings.

EVENING / RECREATIONAL ACTIVITIES

Ratings of Recreational Activities* Mean (Std. Dev.)			
	Campers	**TAs**	**RAs**
Ice Breakers, Sunday- Week 1	3.33 (0.68)	3.33 (0.58)	3.00 (0.00)
Ice Cream Sundae Building, Sunday- Week 1	3.78 (0.58)	3.83 (0.41)	4.00 (0.00)
Floor Meeting/Getting to Know You, Sunday- Week 1	3.11 (0.75)	3.00 (0.00)	3.33 (0.58)
Teambuilding & Games, Monday- Week 1	3.56 (0.70)	3.38 (0.74)	3.33 (0.58)
Kaleidoscopes, Tuesday- Week 1	3.56 (0.58)	2.75 (0.89)	3.00 (0.00)
Movie Night, Wednesday- Week 1	3.81 (0.48)	3.40 (0.55)	3.67 (0.58)
Swimming, Thursday- Week 1	3.70 (0.54)	3.06 (0.78)	3.67 (0.58)
Games on the Quad, Thursday- Week 1	3.44 (0.80)	3.50 (0.53)	3.33 (0.58)
Frisbee Decorating, Friday- Week 1	3.81 (0.40)	3.71 (0.49)	4.00 (0.00)
Karaoke, Friday- Week 1	3.64 (0.49)	3.29 (0.79)	4.00 (0.00)
Talent Show, Saturday- Cape Weekend	3.71 (0.46)	3.67 (0.52)	3.67 (0.58)
Girls Night, Sunday- return from Cape Weekend	3.21 (0.72)	3.50 (0.76)	3.00 (0.00)
Un-Birthday Party, Monday- Week 2	3.54 (0.64)	3.71 (0.49)	3.33 (0.58)
Swimming, Tuesday- Week 2	3.75 (0.44)	2.88 (0.99)	3.67(0.58)
Door Hangers/Picture Frames, Tuesday- Week 2	3.46 (0.58)	3.00 (0.53)	4.00 (0.00)
Games on Quad/T-shirt Signing, Wednesday- Week 2	3.32 (0.77)	3.50 (0.71)	3.50 (0.71)
Bowling, Thursday- Week 2	3.46 (0.88)	3.63 (0.52)	3.00 (0.00)

***** 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.***

Comments and Suggestions from Campers:

- "Let us call at the most 3 different numbers on calling day."
- "On Sunday night we were told to "talk" to our roommate. Well I think if given subjects it could have been better. The residence hall is too hot!!!"
- "Swim a little more."
- "Less running games."
- "A better warning in the morning before count-off if still in room."
- "The games on the quad are tiring and I think we should have to participate or have a rotation of 1 team (design team) sitting and the other 2 teams playing. I think there should be 1 more movie night next week. That was really really fun!!"
- "For games on the quad the games are sometimes boring, would like exciting games like kick ball, capture the flag and more…"
- "More arts and crafts (contests?), more computer time, more activities/games"
- "More swim time."

- "Make a rule that everyone has to be in their own room by 9:20, because I had a hard time finding somewhere quiet to write letters last night."
- "Later dinner – more time to check emails."
- "I think that you should have more than one movie night. I also think that during free time at night, they should have the option to go to the computer lab so they can send another email or use IM because usually people are on at that time."
- "AC? (Possible?)"
- "Instead of making 1 call home during the two weeks make two."
- "Let everyone bowl, even if their lane breaks, double them up with someone."
- "More fans. That's it. Camp Reach '05 was AWESOME!!!"
- "Eat dinner later"
- "AIR CONDITIONING."
- "Have a rule that you must be in your room by 9:20 and lights out is 9:30."
- "Don't go bowling."
- "That you go to the cape again."
- "Cooler rooms!"
- "Breakfast is later so you can wake up later."
- "Maybe have camp a sleep over camp for one week, then go home for the weekend, then come back for another week."
- "Allow two phone calls instead of one."
- "Get some fans or AC."
- "Schedule the sports camps on separate weeks, there wasn't enough room in the cafeteria."
- "During swimming they should have other activities."

Comments and Suggestions from TAs:

- "Some campers didn't enjoy swimming."
- "Not all of the girls wanted to swim so it might work if those who don't can go to the fitness center gym or do some other form of exercise instead. Some girls want to swim every night and some never do once a week is a good amount. Most of the girls love the teambuilding games but some needed a break from so many activities. Maybe offer two options every night if possible."
- "Games on the quad were good because girls like being active. Monday night games used were good because they helped us learn names fast and easy."
- "Let the girls plan the evening activities."
- "I think if we had more time in the dorm before bed time to have more personal time and bonding time between girls in the dorm. Plus a lot of them seemed to doing arts and crafts in there."
- "Definitely keep Sunday night when we get back from the cape just hanging out and doing whatever up in the dorm because everyone really needed it because we were all exhausted!"
- "A lot of the girls didn't want to go swimming. This could be improved by offering an alternative and divide into two groups."
- "I don't think t-shirt signing should be such a big event because some of the girls felt excluded and forced to ask around since no one was coming to them to sign their t-shirt."
- "Not everyone is into arts and crafts but the majority enjoyed doing the Frisbees and crafts at night. Karaoke was not for all but the other activities were good ideas so everyone had something they enjoyed doing. Sunday night was the best because all the girls could do whatever they wanted and the TAs had more independence."

- "The girls night in was the best evening event because the girls got to hang out in the dorms which was they liked doing anyway and the TAs got some much needed break time and we could still watch them. There should be an alternative activity for the girls who don't want to swim the second week because a lot of them didn't."

Comments and Suggestions from RAs:

- "Zip-Zap was very effective as well as the picnic game."
- "The girls really enjoyed making their own door name tags and everyone got involved in making bulletin boards. Having the girls suggest games also worked well for games on the quad."
- "They really liked swimming. I think the games may have gotten to repetitive for some of them by Thursday, although I think they did like being outside."

Based on these results, for 2006 program:

- Do detailed planning for first several nights, including floor meeting.
- Continue to strive for balance between physical and non-physical activities.
- Rules about quiet time (in own room) and lights out may need to be held more strictly.

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	0.68
The program staff are helpful and friendly.	3.89	0.32
The program is well organized.	3.89	0.32
The food is good.	3.56	0.58
Things are going well in the residence hall.	3.67	0.55
End-of-Program		
The program staff were helpful and friendly.	3.96	0.19
The program was well organized.	3.82	0.39
The food was good.	3.68	0.55
The living arrangements in the residence hall were good.	3.71	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.

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**

* 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 liked being with other girls my age who had some of the same interests that I do."

- "Learning about engineering and making a difference to Hope Lodge and knowing I can make a difference."
- "Meeting people and making great new friends."
- "Fun field trips, making new friends."
- "Fun combined with learning."
- "Making new friends."
- "I can't pick because I loved it all."
- "I enjoyed this camp so much – I don't know what I like best."
- "The robotics."
- "I liked meeting new people and friends, and having tons of fun!"
- "Making friends with people from out of my town and meeting people that I have a lot in common with and not much in common with."
- "Getting to do all different games and learning new things."
- "EVERYTHING!!"
- "Having a good roommate that I got along with."
- "I liked being able to make new friends and having roommates."
- "I liked how we were always doing something the programs were very well organized."
- "That I made new friends and everyone was nice to me."
- "Meeting new friends and riding segways!"
- "I liked learning about different types of engineering."
- "Making new friends."
- "Met new people. Got to go to a camp for math and science!"
- "That we had a lot of different, but awesome activities after lunch."
- "I liked everything."
- "I loved all the evening activities, but I loved meeting new friends the most."
- "I liked doing the hands on workshops."
- "Cape cod trip."
- "The night time activities."
- "Sleeping in the dorms."

What did you like least about the camp experience?

- "I found the design project kind of boring."
- "We had to get up really early , go to bed early and didn't have much free time."
- "The salt marsh. It was cool, but I was scared out of my mind."
- "Radio – boring."
- "No air conditioning in residence hall."
- "Not calling parents often."
- "Bowling."
- "It was too hot in the dorms."
- "I won't get to see my friend's that I made here after 2 weeks."
- "Making windmills."
- "Waking up so early."

- "I think the AM radio was my least favorite."
- "The thing I liked least about camp reach was waiting for a shower."
- "The scavenger hunt."
- "Windmills!"
- "I didn't like the fact that the dorms had no air conditioning."
- "Waking up really early."
- "Didn't get to see our parents for 2 weeks."
- "The pressure of the design project."
- "No AC."
- "The lack of A/C."
- "I didn't like it when other girls didn't follow directions."

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

- "More robotics!!!"
- "More interesting workshops instead of the radio lecture, etc. Let people wake up later ☺"
- "I think that you should have more than one movie night. I also think that during free time at night, they should have the option to go to the computer lab so they can send another email or use IM because usually people are on at that time."
- "For the unbirthday party planning don't have the 3 groups. Split up – get to know more people."
- "AC? (Possible?)"
- "Instead of making 1 call home during the two weeks make two."
- "None the camp is absolutely amazing."
- "This camp is perfect. I wish you could make it so we could come every year."
- "Let everyone bowl, even if their lane brakes, double them up with someone."
- "More fans. That's it. Camp Reach '05 was AWESOME!!!"
- "Eat dinner later."
- "AIR CONDITIONING."
- "Have a rule that you must be in your room by 9:20 and lights out is 9:30."
- "Don't go bowling."
- "That you go to the cape again."
- "Cooler rooms!"
- "Breakfast is later so you can wake up later."
- "Maybe have camp a sleep over camp for one week, then go home for the weekend, then come back for another week."
- "Allow two phone calls instead of one."
- "Get some fans or AC."
- "Schedule the sports camps on separate weeks, there wasn't enough room in the cafeteria."
- "During swimming they should have other activities."

MEASURES OF OVERALL SATISFACTION (CONT'D)

PARENTS

Based on responses from 20 out of 28 parents to a mail survey distributed in October-November 2005

Respondents' Assessment of Program Value Compared to Tuition*		
The value and quality of the program…	**2004**	**2005**
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.	4%	5%
4: … exceeded what we paid in tuition.	24%	20%
5: … far exceeded what we paid in tuition.	72%	75%
Average Rating	4.68	4.70
Standard Deviation	0.56	0.57

* Tuition was $400 in 2004 and $500 in 2005.

Parents' Overall Score for the Camp Program						
Program Year*	% of Campers 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**

* Data not available for 1997 and 1998 programs.

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

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

- The program is right on target. For girls who are more advanced in science and math it would be great to have the time and opportunity to learn about one subject in depth.
- We were very satisfied. [Daughter] enjoyed her camp experience tremendously.
- Maybe have an advanced or 7th grade camp. It's nice to have something educational yet fun for the kids to experience of the summer months.
- You are doing a wonderful job with the program!
- What a great job you did setting this up. [Daughter] will <u>always</u> remember Camp Reach!
- Better group projects.
- I really can't think of anything. This was one of the best run and planned programs my daughter has attended. It was a very positive experience for my daughter. Thank you for all your hard work and planning.
- The check-in process was well thought out. The check out process seemed to be more hectic.
- Show them how 3-D CAD software works.
- We would like to see more emphasis on math and science related topics and experiments.

- I don't have any suggestions for improvement. I do want to comment that I loved that [Daughter] could e-mail me. It made me feel more comfortable to have a little contact with her to know she was happy and having a great time.
- I think it is just fine.
- It is an excellent camp!
- Be more clear about the times campers will call home on the Sunday after the Cape Cod trip. The schedule said we should hear from her between 4 and 6. We did not get a call still after 7pm. If the calling "window" is approximate, that should be more clear so parents don't worry.
- My only suggestions might be to build on the experience and interest that many of the girls must have in math problem solving. I think that she didn't really get to experience too much the role that math plays in engineering. Also, the Bose experience was so strong for her. If there would be any way to build on that it would be great.
- I wish she could go again or there was a continuation of things they already learned at another camp for 7th grade girls.
- Closing day too long and needs work. Use cooler dorm and third floor not top floor during heat of summer. Heat from roof radiated in. Schedule of events and flow was great. Also loved having a copy so I could look each day to see what she was doing.
- It would be helpful to direct the girls to other resources or programs that provide information on technical careers. An engineering careers reference book.

STAFF

Overall Impressions and Satisfaction of Staff Members (N=10)		
	Mean*	**Std. Dev.**
The program ran smoothly and was well organized.	3.86	0.36
During the camp program, there was good communication between staff members.	3.64	0.50
The food arrangements were good.	3.64	0.50
Things ran well in the residence hall (TAs and RAs only)	3.36	0.67
I learned a lot from being a Camp Reach staff member.	3.57	0.65

***** 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?

- "My design project group was awesome. I am not sure I have ever worked with a group that worked together, supported one another, and completed assigned tasks as well as this one did. I really enjoyed working with my group and the time flew."
- "I enjoyed gaining a more broad understanding of engineering. I enjoyed working with a competent and friendly staff. I enjoyed meeting some great girls and having a lot of laughs while we worked towards a common goal."
- "I enjoyed working with my team and helping them gain confidence in their abilities to research, write, interview and present. I felt it was really powerful for the girls to start and finish a really tangible project in 2 weeks and enjoyed the challenge of trying to get them through the process."

What did you like least about the camp experience?

- "At times I felt like I was abandoning my group at the end of the day when I went home. I was very disappointed to have missed the sand castle building."
- "Honestly, there isn't anything I disliked about this experience."
- "For the most part, I enjoyed everything. A few of the workshops could be improved so its cleaner to the girls what the point is rehab, fire safety, and AM radios."

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

- "Some of the afternoon sessions went a little long-- probably because they might have been in the morning last year. The afternoon session could end a bit earlier and the time could be used for some physical activity before dinner. While it is clearly not the point of the camp, I think it is important to emphasize physical fitness and exercise to young people today. As I have thought more about it, I think an AutoCAD session/tutorial would be valuable for the girls and they could certainly learn the basics in a 2-3 hour session. It would be fun for them to complete a project like designing the perfect tree house or game room taking into account various design constraints (specifications). They could diagram their design in AutoCAD."
- "The schedule was great, but some of the afternoon sessions seemed a bit long. Even if the girls were given a 5 minute break here and there it could make a difference in their overall attention span."
- "Unbirthday party Not sure how else to begin the week but this felt like a tough, slow start. Roles of TA's More emphasis in training about how to facilitate discussion with 7th grade girls w/o giving them the answers-plus how they can be an asset during the project design process."

Feedback and Suggestions from TAs

What did you like most about the camp experience?

- "Getting close to the girls."
- "I liked acting as a mentor and role model for the younger girls in a subject that I am very interested in."
- "Of course I loved all the surprises on my birthday it made me feel really good that although everyone was busy they still made arrangements to surprise me. I also loved getting to know all the girls and watching how they handled certain situations after asking me for my input."
- "Bonding with the girls, I don't remember my TAs getting as close with my year and I hope the girls had as much fun as I did."
- "Living in the dorms with the girls gave a sense of higher responsibility and gave us TAs a sense of living in dorms for college."
- "I really liked how organized and informative all of the activities were. I would have loved to go here when I was their age. The fun engineering activities taught them that math/science was exciting."
- "The part I liked most about the camp experience was watching the girls grow in their confidence and self-understanding as well as becoming more knowledgeable about engineering."
- "Meeting all the new girls and getting to know them .After hours with the staff was a lot of fun."

What did you like least about the camp experience?

- "The bathrooms."
- "Being away from home for two weeks and not necessarily having so much responsibility, but having to take on more when another TA wasn't doing her job as well as she could have."
- "I understand but I did not like how the TAs had to be with the girls after dinner only because it becomes exhausting to be with them from when they wake up until they go to bed."

- "How the TAs had almost no time off. We all ended up getting run down and exhausted and that prevented us from being enthusiastic in the way we could have been with the girls."
- "Towards the second week, the girls became very mean towards each other during the evening. Shoes were stolen, wall hangings tore down, and just an air of dislike. However, Nicole and the other RAs put them in line."
- "I didn't like the cliques that formed between the campers but it wasn't such a bad issue because there were some "overlappers"."
- "At times camp just got overwhelming having to spend so much time with the same people and personalities."
- "Breakfast was too early."

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

- "Buckets for the salt marsh and more time at the beach!"
- "I think that in the second week of the project new concepts should have been introduced sooner like the paper. I think it would have helped the girls to know what they must complete ahead of time."
- "I honestly think the program is well organized and there are enough activities that they learned a lot from."
- "One thing I noticed that towards the middle of the week the girls became tired and dragged down. I suggest that maybe a break after lunch would be a good idea to regenerate the girls so they can enjoy the afternoon activities even more."
- "More TA time off and maybe a bit more chill time for the girls too because they also get very tired."
- "I think that the campers had a great experience and are all impressed with the camp. It was well run and very creative. I have no suggestions for improving their experience other than some of the afternoon activities were not presented in a kid friendly way. But otherwise, it was awesome."
- "Maybe a camper orientation a few weeks before camp starts so staff gets an idea of what the campers' personalities are like before and so unlikely pairs aren't put in the same groups or as roommates."
- "Making the disability workshop more active and less computer time and lecture. I noticed the girls didn't really pay attention towards the end of that workshop."

<u>Feedback and Suggestions from RAs</u>

What did you like most about the camp experience?

- Meeting the different girls and making a connection. Also learning that I have such an influence.
- Getting to know new people of different age groups and backgrounds.
- The girls were great, the staff was great. It was my favorite program.

What did you like least about the camp experience?

- Confusion about where and what we were supposed to be doing. Especially after bowling was moved. Was never a major issue though.
- (Just that it was my last program so I got tired but that's no the camps fault) Other than that it was great!!!

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

- "Everything went well and the girls seem happy so I can think of no real improvements that need to be made."

- "They probably wanted another movie night. More time or less to do at unbirthday party back up plans."

Based on these results, for the 2006 Program:

- In case of a repeat of the hot weather in 2005, explore which residence hall is coolest, avoid 4th floors, emphasize recommendation to bring fans, and have extra fans on hand.

STAFF TRAINING

Staff Preparedness Resulting from Training and Orientation*		
	Mean*	**Std. Dev.**
I was sufficiently prepared to address issues related to adolescent behavior.	3.57	0.51
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.	3.57	0.65
I was sufficiently prepared to address issues related to homesickness.	3.36	0.50
I was sufficiently prepared to facilitate our teams' work on the design project.	3.45	0.52
I was sufficiently prepared for the following workshops:		
Computer Orientation	3.55	0.52
Un-Birthday Party Design	3.55	0.52
Wacky Shoes	3.00	0.67
Forensics / Who Dunnit	3.55	0.82
Biomedical Engineering: Electrocardiograms	3.44	0.73
Biomedical Engineering: Center of Gravity	3.67	0.50
Segways & Gyroscopes	3.40	0.70
Salt Marsh Scavenger Hunt	2.88	0.99
Wind Power Activity	3.00	0.93
Sandcastle Building Workshop	3.38	0.52
Fire Protection Engineering Tour	3.20	0.63
Field Trip to Bose	3.27	0.65
Rehabilitation Engineering Workshop	3.09	0.83
Electrical Engineering Workshop: Building an AM Radio	3.36	0.67
Robotics	3.27	0.65

* 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:

- "The electrocardiogram lab did not run as smoothly as I had hoped. I do not think the girls got the main point of this lab. Additional direction would have been helpful. The lab sheet also had a few typos that made some questions confusing for the girls."
- "I felt very comfortable with all aspects of the orientation and don't have any areas in mind that could use improvement. I liked the insert with info on "what you can do to prepare for the first day." The binder is especially helpful and detailed!"
- "Overall, I admit I have felt under prepared at times but at the same time, I'm not sure additional prep time is necessary. I have felt challenged to make sure our design sessions are productive and am satisfied with the overall prep. I really appreciate that Chrys has been so helpful and accessible along the way."
- "I think we didn't have to spend as much time as we did on orientation stuff."
- "In both the biomedical engineering workshops, particularly the ECG one, staff wasn't required to participate; however it would have been extremely beneficial to have had more background knowledge of lab to assist the girls because they needed it."
- "I think orientation was great."
- "A little more explanation on the "Who Dunnit" workshop would have been nice….just like exactly how it was going to run, where we should be, etc."
- "I just needed time to get to the ladies around me in order to feel confident as a team. For forensics I wasn't too familiar with the building since I had only been on the first floor for orientation."
- "The orientation was very informative and I thought that it was done really well."
- "I was unsure about TA "after hour" obligations, but it was never a serious issue."
- "Maybe a little more "get to know you" time but I know how jam packed the schedule was anyways without adding more…Also, more active activities might help."

Feedback on TA Nights Out:

- "I really liked TA night out! :)"
- "The TA nights out were fun and gave us all a break from the girls and I think that it was nice to have them once a week."
- "It was really nice that Chrys took us out on Wednesdays. The movie was a good idea and everyone seemed to enjoy Crystal Caves. It was nice to get a break."
- "Great for a break to get us out for a while."
- "Both movie night and Crystal Caves were wicked fun."
- "I had a lot of fun especially since it was my first time at Crystal Caves."
- "It worked out well."

Based on these results, for 2006 program:

- Try to decrease listening, increase activity as much as possible on staff training day.
- Provide more emphasis to TAs (drawing on MST expertise) on how to facilitate discussion with 7th grade girls without giving them the answers (e.g., art of questioning) and how they can be an asset during the project design process.

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?*	28	4.21	1.40
How useful were the opening day activities?**	18	4.72	0.57
How useful was the closing day parents' session?**	18	4.67	0.59

* 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:

- "Maybe could email roommate."
- "None, everything was perfect!"
- "Would be helpful to include a sample daily schedule."
- "Information on a website. I left my schedule at my office."
- "Email questionnaire. It was very concise and pertinent information."
- "Very thorough and timely, I can't do better."
- "Excellent as is."
- "Give more information concerning security of campers (police, etc.) in information packet."
- "Very nice already."

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

- I was happy with the whole program. I felt comfort leaving her. It was well organized and informative. Being able to e-mail was a great plus. And having a detailed daily schedule was excellent.
- On the closing day, please let us give the girls a quick hug before the slide show. J
- I think that they were fine as is. I loved the slide show at the closing dinner—we all did!
- Having closing day on Friday afternoon makes it hard for working parents.
- We thought both were done quite well.
- I can't think of any. I thought the activities were very thorough.
- Closing day information about Mass Academy was informative but the second presentation was repetitive of opening day comments and not very useful. [Daughter] was really ready to go home that last day because she was pretty tired. Dinner was a nice touch but a short reception/slide show after the girls' presentations would have been enough.
- No change needed.
- The opening session and closing were good experiences. I felt the homesickness part was a little overdone—but [Daughter] would not have had a problem with this so it is my reaction because she is independent.
- Too long
- Could have used more signs on opening day and perhaps more adult staff around campus to "meet and greet" campers and families and direct them to appropriate location.

- Opening day was perfect. Closing day needs improvement, although enjoyed presentations. Session on special high school very good but could be shorter or show slides instead of just talking. Dinner w/ students would be more fun where they ate dinner and have them show us around for a meal. Also, $14 meal (too expensive) was terrible (not good for kids and barely warm). Long line.
- I think the girls should have had the Mass Academy presentation that the parents received.

Based on these results, for 2006 program:

- Try to duplicate the 2005 registration/check-in process. There was a big improvement compared to 2004. Making sure that setup of registration tables occurs sufficiently in advance is essential.
- Initiate more planning among RAs to streamline check-out process.
- Discuss the possibility of eliminating or simplifying the closing meal. Could replace with simpler reception with refreshments and slide show.