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Expanding Your Horizons

2003 Conference Evaluation

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Expanding Your Horizons: A Brief History

Expanding Your Horizons in Science and Mathematics (EYH) are conferences created to promote and foster interest for girls in the areas of science and math. The conferences are held with hopes that girls who attend will be encouraged to consider careers in these disciplines. In 1976 the Math/Science Network formed the first EYH conference held at Mills College in Oakland California.

The Math/Science Network was originally created in 1974 by a group of female math and science educators in San Francisco. The founders of the Math/Science Network were concerned with the low participation rates of females in math and science courses. It was this initial concern that spawned what is now known as a nationally recognized effort.

Since the first EYH event more than 575,000 6th-12th grade girls and approximately 59,000 parents and educators have attended EYH conferences. In the 2000-2001 school year, there were 100 individual conferences held in 29 states, reaching 28,000 students. Humboldt State University is one of the host sites for EYH. The goals of the conference are:

- To provide young women with opportunities to meet and interact with positive women role models who are active in math and science related careers;
- To involve young women with limited opportunities for success in positive experiences in mathematics and science;
- To increase the interest of young women in math and science by providing exciting and fun hands-on learning experiences;
- To encourage young women to study as much math and science as possible by showing them the benefits of education and its relevance to their lives;
- To foster awareness of career opportunities in science and math related careers.

EYH at Humboldt State University

Humboldt State University (HSU) held its first EYH conference in 1982, which was organized and directed by Phyllis Chinn. Through 1989 the conferences were held annually for 6th through 12th grade girls (in 1995 HSU limited its conference range to 6th through 8th grade girls, due to the high number of girls attending and the lack of human resources available to accommodate the high number of attendees). Despite the shift in grade range, 400 girls attended the conference at HSU in 2001, illustrating the popularity of EYH.

Theoretical Rationale

Even though girls perform as well as boys in science and math, there is a marked loss in interest in Science, Technology, Engineering and Math (STEM) areas that occurs in middle school (AAUW 1999; Fennema and Sherman 1978; James and Smith 1985; Schreiber 1984; White 1992). There are many possible causes for this change in interest. Different expectations for girls and boys can lead to gender bias in the classroom (Becker 1981; Eccles-Parsons 1984; Gilbert & Taylor 1991; Kahle 1990; Wilkinson and Marrett 1985). While research has noted the importance of strong female models in encouraging interest in STEM (Wertheim 1995), k-8th grade school teachers who are predominately women (Blank and Langesen 2001; Henke et al. 1997) often themselves lack confidence in these areas (Weiss 1993). This lack of confidence compromises their ability to model an affinity between girls and science.

Methodology

This report is based on data from the EYH 2003 conference at HSU. 251 girls and 231 adults and educators attended. After the event the girl participants, adult participants, workshop presenters, and volunteers were asked to complete an evaluation form about their experience. 81 percent (203) of the girls submitted evaluations, 46 percent (43) were submitted by workshop presenters, 4 percent (4) were submitted by volunteers, and 100 percent (47) were submitted by adult participants.

The questionnaires administered to the conference participants consisted of both open and closed-ended questions. For example, the participants were asked to give their demographic information, rate their experiences, write any additional comments, as well as comment on their personal experience with the conference. Therefore, both quantitative and qualitative analysis was used in analyzing the success of the local EYH conference. The quantitative portion of the study included demographic information as well as general attitudinal questions that may provide some insight into the attendee's experience. Additionally, the qualitative portion consisted of open-ended questions, which allowed the attendees to express their individual experience with the conference.

EYH planners offered an EYH tee shirt with proven popularity in the past as an incentive for completed evaluations. During the sign-in portion of the event all of the participants received the evaluations with other materials needed for the day. When the participants received the packets and materials they were told about the incentive offered for the finished evaluations. After the closing activity (What's My Line?) the participants were reminded to fill out their evaluations, and as they left the conference the evaluations were traded for a tee shirt. The evaluations were then collected by an HSU sociology graduate student.

A graduate and an undergraduate student coded and entered the quantitative data into SPSS for analysis. The qualitative data was word processed by a conference administrative assistant, and then entered into the NVivo program. After the data was entered into both programs the graduate student ran frequency distributions and cross tabs in SPSS. Patterns and themes were established among the respondent's comments. The acknowledged themes will be discussed in this report.

Finally, there were a few limitations regarding this study that warrant discussion. There were a few questions on the girl evaluations that seemed to cause confusion. First, the girls were asked to circle the race/ethnicity with which they identified with. They were given six options: African-American, Native American, Euro/Caucasian-American, Asian American, Hispanic, and other. The girls were instructed to circle all that apply. Many of the girls seemed confused and circled either "Euro" or "Caucasian", and some girls wrote in the "other" category things like "Irish", "American", etc. The confusion that occurred suggests the need to refine this question for the girl participants in the future. Additionally, those who circled "Native-American" and some other ethnicity were coded as Native American. Therefore, when looking at the demographic information it is important to keep in mind that those listed as Native-American might have circled Native-American and some other ethnicity. As a final point, the question regarding prior interest and present interest in math/science was also an issue of concern. That is, the question assumed that the participants held math and science as equal fields of study, rather than as two separate entities. This question in the future should be rephrased, and divided into two separate questions so as to increase the validity of the question.

Girl Participants

Demographics

Grade:

The girls who attended the conference ranged from 6th to 8th grade; however, there was one respondent who indicated she was in 5th grade. The majority of the girls (42 percent) were in 7th grade, 35 percent were in 6th grade, and 23 percent were in 8th grade.

Location:

The girls came from 34 locations in Humboldt County, as well as its surrounding areas. Arcata and Eureka represent the largest urban centers with 17% of the girls coming from Arcata and 13% from Eureka. 14 percent of the girls were from Trinity, which is rural with a more dispersed population base. Of the participants from Trinity County 7% were from Willow Creek and 7% from were from Hoopa, an Indian reservation that bused a group of students to the conference with financial support from EYH. Additionally, 5% of the girls were from both Crescent City and Leggit. The school locations with the fewest number of attendees (at .5% or one girl) included: Blue Lake, Loleta, Lewiston, Whitethorn, Kneeland, and Trinidad. Though Blue Lake, Loleta, and Trinidad are no further than approximately 15 miles from Arcata where the conference was held, they are all smaller towns, which may attribute to the low number of girls attendees. Lewiston and Whitethorn are both smaller towns between approximately 100 miles from Arcata, which may be the reason for the low number of girls from those locations.

Race/Ethnicity:

The girls were asked to circle the race/ethnicity they most identified with: Asian-American, African-American, Hispanic, Native American, Euro/Caucasian, and Other. The girls were told that they could circle all that applied to their personal racial/ethnic identity. Sixty-five percent of the girls identified themselves exclusively as Euro/Caucasian, and 35 percent of the girls identified with some minority group: Native American (18 %), Other (9 %), Asian-American (4%), Hispanic/Native American (2%), African-American (1%), and one attendee was African-American/Hispanic.

Table 1: EYH 2003 Ethnic Background of Girl Participants

Ethnic Background	Frequency	Percent
Euro-American/Caucasian	125	65%
Native American	34	18%
Other	19	10%
Asian American	6	3%
Hispanic/Native American	3	2%
African American	2	1%
African American/Hispanic	1	1%
Total	192	100%

* 11 girls did not report ethnic demographic information

Conference Evaluation

Recruitment/Marketing:

The majority of the girls (72%) reported that they heard about EYH from their teacher, 17% reported they had heard about EYH from a friend, 16% from a parent, 12% from a school visitor, and 11% reported that they heard about EYH from a source other than those listed on the evaluations. Some of the other sources listed by the girls included: The radio, mail, Internet, and a pamphlet given to the school.

Recommend Conference:

The girls were asked if they would recommend EYH to a friend. This question has the potential to be very telling of the girl's experience with EYH. It not only allows the respondents to reflect upon their personal experience, but it also helps to determine if the respondents feel that others in their age group would enjoy a similar experience. The results were promising: The majority of the girls reported that they would absolutely recommend EYH to a friend, a significant number reported they would probably recommend EYH, and only 3% reported that they would probably not recommend EYH to a friend (Table 2).

Table 2: Girl Participants Would Recommend EYH to a Friend

Ratings	Frequency	Percent
Absolutely	116	61%
Probably	68	36%
Probably Not	5	3%
Total	189	100%

*** 14 Girls did not respond to this question**

Pre/Post Interest in Math and Science:

We also compared the girls interest in math and science before and after the conference. The data suggests that the majority of the girls already had an interest in math/science before the event, and attending the conference increased their already present interest. A small, but significant, number ($p < .05$) did not have any previous interest in math/science, but after attending the conference their interest increased. Finally, about 15% of the girls had a previous interest, but after attending the conference they did not show an increased interest in math and/or science. It is possible, but not likely, that EYH had a negative impact. The probability of this is low because other information gathered from the evaluations seems to suggest that overall the girls had a good, if not great, experience with EYH. It seems the most likely reason for there not being an increased interest is that there was simply no change in the interest of math/science for those girls (Table 3).

Table 3: Girls Pre/Post Interest in Math/Science

Had Interest Before Gained Interest After	Had Interest Before Did Not Gain Interest After	No Interest before Gained Interest After	Did Not Have Interest Before or After
74%	15%	9%	2%

***25 girls did not respond to this question**

In addition to the closed ended questions the girls were also asked a series of questions that asked them additional scoring and comments regarding their experiences. The analysis that follows will look at those questions.

Program Packets and Materials

When the girls signed in at the conference they were given program packets that included various items: pencils, tattoos, science kits, etc. The girls were asked to rate the packets, and provide additional comments regarding them. The majority of the girls rated the packets/materials as excellent, a considerable number of girls rated the packets as good, and only a few girls said the packets were fair (Table 4).

Table 4: Girls Evaluations of Packets and Materials

Packet Ratings	Frequency	Percent
Excellent	121	65%
Good	59	32%
Fair	5	3%
Total	185	100%

*** 18 girls did not respond to this question**

When asked to comment on the packets the general consensus among the girls was that the packets were “cool”:

- Cool pictures and packet books
- Cool, it’s neat that we get to keep them
- I think this is so cool
- They’re really cool, so I can always remember today

Besides the packets and materials being cool, some additional comments made by the girls included statements such as:

- I liked them they are so cram packed that you can barely close the folder
- I’m looking at the papers and learning how important science and math really are in life
- It makes us feel older
- They are very informative and a good investment

Finally, there were a few girls who made comments about how they felt their experience with EYH was great for girls in general. The statement that follows illustrates this goal of EYH: One girl wrote, “This is very cool it is so cool to know that there are people who help girls achieve their goals”.

Guest Speaker

Another question asked of the girls concerned the guest speaker, Dr. Sandra Magnus, a NASA astronaut. A rather high percentage of the girls (86%) stated they really enjoyed her talk and presentation, where 12% rated her as good, and only 2% rated her presentation as poor (Table 5).

Table 5: Girl evaluations of Guest Speaker

Ratings	Frequency	Percent
Excellent	170	86%
Good	23	12%
Fair	4	2%
Total	197	100%

*** 6 girls did not respond to this question**

In conjunction with the scale in which the girls rated Dr. Magnus, the majority of the girl's comments were positive. Many of the girls wrote about the video she showed in her presentation:

- I loved the video GIRL POWER!
- I love the video, I actually felt I was there.
- I liked that we got to see a real movie from space.
- I really liked seeing how things worked in space.
- The video was really cool, and it made me want to go into space.

There were a few negative responses, but these responses mostly referred to the length of the presentation and the speed with which Dr. Magnus spoke:

- It was interesting, but it was kind of long.
- Very cool I liked it but it was a little long!
- She talked too fast.
- She spoke a little too fast but she had some really good 411[information].

Finally, there were many comments made directly about Dr. Magnus that were extremely positive and seemed to convey that she inspired the girls in one way or another:

- I thought it was rad how we got to see a real NASA person.
- I think it was pretty cool, I always wanted to float in space.
- She is so amazing and is a really positive role model. I wish I could give her a number higher than a # 4 for excellent
- That was really cool to hear from an actual astronaut from NASA. Getting to see someone who had actually been up in outer space.

Overall the girl's comments were extremely positive, with only a few girls stating slightly negative suggestions. It appears that having a guest speaker such as a woman astronaut was overall very inspiring for the girls.

Workshops

Due to the large number of workshops, each with small numbers of attendees, the analysis of this portion of the evaluation will not look at each workshop individually. Instead the workshops will be treated as an activity as a whole split into two groups: Workshop One and Workshop Two. The workshops presented at the event were as follows: Computer Challenges, Muscle Power, Weathering,

Environmental Patrol, Shake Rattle and Role, The Stuff of Life, Stream Sense, Animal Friends, Hands on Biology, Magical Math, Hands on Health, Bubbles and Waves, Building our World, Plants are Fun, Check it Out, and Chemistry has Solutions.

Most of the girls, 60%, rated Workshop One as excellent, 33% rated it as good, 9% fair, and only 2% thought Workshop One was poor. Interestingly, overall, Workshop Two received higher ratings from the girls than Workshop One. Seventy Six percent of the girls thought Workshop Two was excellent, 15% rated it as good, 8% said it was fair, and 2% thought it was poor. The same workshops were offered in both groups; therefore, difference in the ratings for Workshop One and Workshop Two does not have to do with which workshops were offered. It seems a logical explanation for this discrepancy may lie in the timing of the workshops. That is, perhaps it took both the girls and presenters some time to “warm-up”. Additionally, in cases such as this, presenting the workshops the first time around is often a means to discover what works and what doesn’t in a presentation. Therefore, the presenters had the opportunity to improve or change their presentation the second time around (Table 6).

Table 6: Girl Evaluations Workshop Scores

	Workshop 1		Workshop 2	
Ratings	Frequency	Percent	Frequency	Percent
Excellent	111	57%	147	76%
Good	64	33%	28	15%
Fair	17	9%	15	8%
Poor	3	2%	3	2%
Total	195	100%	193	100%

*** 8 girls did not respond to workshop 1 question.**

*** 10 girls did not respond to workshop 2 question.**

The qualitative data for this section of the evaluation did not show the same discrepancy that the quantitative data revealed. The majority of the girl’s comments were extremely positive for both workshops One and Two. If one were to look at only the qualitative portion of the evaluation, it would appear that both workshops (One and Two) were more similar in ratings, rather than what the quantitative portion suggests. There were only a few comments that were negative in nature. Most of the girls discussed the importance of participating in a workshop that offered “hands on” activities:

- Would have liked to do more stuff.
- The experiments were fun!!
- It was fun. I like being on the radio.
- This was really a great class we tore apart a plant.
- I was kind of disappointed because we didn’t get to do anything hands on.
- Lot’s of fun. Everything was soo great. We did a lot of hands on stuff.
- I think it was fun, I loved playing in the water!
- I really liked how we got to use real surgery tools and real cases...
- It was okay...I think they could have been more hands on and a little more social.
- I had fun making splints.
- I thought my creativity was increased because of sculpting the teeth.

Further, there did not seem to be a real trend in which workshops were liked or disliked. It seems that it depended upon the girl's individual interest within a given area of math and/or science. The comments were varied in terms of which workshops were most liked.

- It was awesome to learn to survive in a storm.
- I loved it radio is going to be a big influence.
- It was cool and all of the plants are beautiful.
- This was really fun. And I got the hang of it. I wanna be a dentist.
- It was fun looking at skulls and learning about mammals.
- I like insects now!!
- It was so cool. Bacteria is awesome.
- I loved making designs. I loved it. ☺
- This was a cool class. It inspired me to take chemistry in high school. I love it.
- I had fun and learned a lot about salmon and fish habitats.
- Great class very fun. Great veterinary volunteer!
- Fav[orite] part was the live creatures.
- The people talked about some interesting things like earthquakes.
- It was cool. I never thought that building roads could be so hard to do.

In sum, the workshops generally received high ratings and positive comments from the girls. Even though there is a some difference in the ratings between workshops one and two, the qualitative data shows that the girls enjoyed both sessions. Consideration for future conferences might include more “hands on” activities within the individual workshops.

Science Mall

The science mall was an activity that occurred after the workshop sessions. It consisted of several informational and interactive booths, similar to a science fair. The girls were asked to rate their experience with the science mall and express any comments about their experience they wished to share. The quantitative and qualitative data appeared to be in agreement. The majority of the girls rated the science mall as excellent, and only a few girls rated it as poor (Table 7).

Table 7: Girl Evaluations of the Science Mall

Rating	Frequency	Percent
Excellent	116	65%
Good	54	30%
Fair	8	5%
Poor	1	1%
Total	179	100%

*** 24 girls did not respond to this question**

The most common words used by the girls to describe the science mall were “interesting” and “fun”, suggesting that the girls had an enjoyable experience. The girls also really seemed to enjoy the free things they were given at the science mall. Some comments made by the girls that illustrate this include:

- Very Fun. Lot's of great stuff also free stuff! Great time to socialize about what you did and what was fun at EYH!
- A lot of the science mall was a lot of fun.
- I thought the things they gave out were fun.
- So many interesting topics and exhibits. Friendly informative speakers.
- Soooooooo cool.
- Very fun and interesting. I liked the free things.

Most of the negative comments discussed how there was not enough time to see all of the booths:

- There wasn't enough time to eat lunch and look at all of the shops.
- All of the good ones were filled up. But it was a lot of fun.
- We need more time. Great booths.

Though there were a few comments made by the girls that suggested room for improvement, the girls in general found the science mall activities enjoyable: "The science mall was really cool! I learned a lot! This was my favorite thing."

Closing Activity: What's My Line?

The closing activity of the conference was set up like a game show. The girls were given an opportunity to ask different professionals three questions in order to guess their profession. The final portion of the quantitative analysis asked the girls to rate the closing activity. Unlike the other ratings given by the girls, the ratings for this activity were considerably lower. A little less than half the girls rated it as excellent, a similar number of girls only rated it as good, and 15% rated it as fair or poor (Table 8).

Table 8: Girl Evaluations of Closing Activity

Rating	Frequency	Percent
Excellent	73	46%
Good	59	37%
Fair	23	15%
Poor	4	3%
Total	159	100%

*** 44 girls did not respond to this question**

The qualitative data for this item on the evaluation showed similar results. Less than half of the girls seemed to really enjoy the closing activity, a similar number of girls felt that it was "ok", and quite a few girls either did not like it or gave suggestions on ways to improve it in the future. The major themes presented in the girls comments were: It was fun and interesting, it was just OK, and it was too hard, confusing, or too long.

First, the girls who really seemed to enjoy the closing activity stated that it was "fun" and/or interesting":

- It was interesting and fun.

- Nice game! Funny!
- It was interesting. Thanx for organizing it for us.
- It was cool. Kinda like 20 questions, only more.
- It was fun to guess what people were.
- It was kind of neat because we heard about more jobs.

Though almost half of the girls felt that it was a great activity, there was a significant number who felt that it was “ok”. This is something to consider for future conferences, because out of all of the activities this one not only got the lowest ratings, but the girls comments also suggest that there is room for improvement:

- Kinda fun.
- It was pretty good kinda fun.
- A good game, but kinda boring.
- It was okay, but I really didn’t get into it.
- It was all right.

Finally, quite a few girls made suggestions for future activities. Many girls discussed that the closing activity was too difficult or confusing. These suggestions can possibly help to discern why this activity had relatively low ratings:

- Interesting but hard to hear. Not as good as the other classes.
- How about “What’s my job”?
- It was ok, but too many people.
- Hard need more clues.
- It was ok. Kids should be the people.
- I liked it. You should make it have more time for questions.
- I think it was too hard to guess the jobs.
- Confusing! I couldn’t follow!
- It was okay, kind of slow having to wait for the right person to say something.
- Don’t do it next time.
- Fun, but long line, tough answers.

Consideration for future conferences might include checking for age appropriateness since quite a few of the girls discussed that it was too difficult and confusing. Or perhaps creating an activity that actively engages all of the girls by placing the girls in teams, rather than involving only a small number of them, could possibly meet the interest of more girls in the future.

Why EYH?

Finally, the girls were asked three open-ended questions that were designed to gather more in-depth data on their personal experience with EYH. First, the girls were asked to discuss why they decided to attend the EYH event. The responses varied, but there were a few that came up several times throughout the analysis. The major themes found during analysis were it was something fun to do; the girls had a previous love for math and/or science; to learn more about math and/or science and its career options; someone had recommended it to them; and the girls had attended EYH in the past and decided to come again because of their previous experience (Table 9).

Table 9: Why Did You Come to EYH?

1. Expectations of fun
2. Existing math/science interest
3. To learn more about math/science careers
4. Recommendation of other
5. Return attendees (enjoyed before)

For example, most of the girls stated how they simply thought the conference would be something “fun” to do:

- It sounded fun!
- Because I thought it would be fun to try this out.
- I wanted to have some fun with science.
- I thought it would be fun to do instead of sleeping.
- Because it seemed so interesting and thrilling.

There were also quite a few girls who had a previous interest or “love” for math and/or science, which led to their decision to attend EYH:

- Because I loved math and science.
- Because I like doing new things and science.
- Because I love animals and biology and it’s a great opportunity for girls to explore fields.
- I love science and I want to be a pathologist.
- I love science but it isn’t my strong point. I came to give it a boost. I was also interested in Sandra Magnus!

Additionally, there were also girls who came to the event to learn more about science and/or math, as well as to learn about career options:

- Because I wanted to learn more about biology.
- To expand my science and math learning!
- I wanted to know what I can do when I am older.
- Because I want to be a P.I. and I thought it would be good for me.
- I came because I’m interested in what I can do when I grow up.
- To learn more!
- I wanted to “Expand my Horizons”!

Some of the girls decided to attend EYH because their mother, friend(s), or teacher had recommended it to them:

- My mom recommended it.
- My mom made me but I’m glad of it.
- My teacher talked about it and me and some friend’s thought it would be cool to try.
- Because it looked fun and people who came here before said it was a lot of fun!
- My friend asked me if I wanted to come.

Finally a few girls stated that they had come in the past and really enjoyed it, which gave them incentive to come again:

- I came last time and enjoyed it.
- Because I went in 6th grade and I liked it.
- I did it in 2001 and had fun.
- Because I thought I could learn new stuff. I came before and it was fun.
- I came before and enjoyed it.

There were many reasons the girls gave for attending the EYH conference, but the majority of the girls came because they thought it would be “fun”, and/or they had a previous interest in math or science. Therefore, in the future one might consider how to draw upon the population of girls who do not fall in the category of having a previous interest.

Liked Least About the Conference

The girls were also asked to comment on what they liked least about the conference. In regard to this question, most of comments pointed to issues of time: Long speeches, time it took to start, and sitting for a length of time as well as scheduling problems (Table 10).

Table 10: Liked Least About the Conference

1. Issues of time
2. Scheduling problems

Below are some comments that relate to issues of time:

- I did not like sitting for so long.
- Long speeches.
- Too long.
- The speakers talked to long.
- All the time we had to wait for Dr. Magnus’ speech.
- How early it is.
- The long lines to sign in, and to get the T-shirt.

Another concern brought up by the girls referred to scheduling problems:

- I didn’t like that I didn’t get the one class I wanted. I didn’t get any of the four I wanted.
- I didn’t get the first two choices I had.
- There wasn’t much leeway time for if something took extra time.
- I didn’t like that when I went to “check it out” and they put me in a survival thing instead of criminal investigator thing like I said.

Overall, the girls made statements about structural issues, which have a tendency to occur at most large events. However, because there were a significant number of girls who stated that they did not like sitting for long length of time, it might be good to take into consideration how long the girls sit during the speeches, etc.

Most Memorable Experience

Finally, the girls were asked to share their most memorable or fun experience from the EYH conference. The question was framed in a way for the girls to imagine they were sharing their experience with a friend. There were many different responses to this item on the survey. However, there were a few responses that showed up again and again for this particular question. For example, many of the girls discussed meeting/hearing Dr. Magnus as their most memorable experience; also, many of the individual workshops were highlighted; the science mall was another activity the girls really seemed to enjoy; and finally, a few girls discussed their overall experience with EYH as being the most memorable for them (Table 11).

Table 11: Most Memorable Experience

1. Guest Speaker (Dr. Magnus)
2. Workshops
3. Science Mall
4. Everything

First, meeting a “real life” astronaut seemed to leave a lasting impression on many of the girls:

- I would say that it was so cool that we got to meet a real astronaut. It was like meeting Neal Armstrong. I really want to be an astronaut or rocket scientist.
- I would tell my friends that we got to meet an astronaut and we got really cool stuff! Also that people try to make girls more interested in science and math.
- Probably Dr. Magnus. I thought her movie was real neat.
- “Sandra Magnus was great! I even got to see an awesome video that was made by her and the crew. She answered a lot of questions and she seemed really nice! You should have been there!”

There were also many comments made regarding the individual workshops. The workshops the girls discussed as being the most memorable experience are presented below. These comments were seen throughout the evaluations:

- When I was in workshop 2 and I took apart a model of a body. I got to take out the lung, breast, colon, and kidney. I had a lot of fun doing all of the stuff and now I know I want to be a P.I. for sure.
- I would tell them about the animal “operation” we did on a stuffed dog.
- I got to make a beetle necklace. The necklace is cool looking.
- Stream Sense: It was really fun with the waders. I like the idea of being in water and being dry at the same time.
- At the Expanding Horizon I was in Hands on Health and 2 women showed us how to model a tooth with wax to make it the same proportional size as the other teeth on a whole set of teeth...This conference made me decide to be a dentist!
- ...I chose Hands on Biology 11H and I’m glad!! During Hands on Biology, I got to hold a cockroach. You would think that it would be gross but it was fun and it was not slimy, just warm. I want to come again!!
- In my Stuff of Life class I got to clone DNA. It was so awesome. Micro-study is so cool. You should have been there. What’s kind of funny is that I never thought bacteria would be cool. All the anti-bacterial stuff is actually bad for us...the isolated DNA looked like snot. Everyone as soon as they saw it said “Yew! It looks like snot”.
- It was really fun to be in Muscle Power. At first I thought I wouldn’t like, but I loved it!
- I would probably tell them about Bubbles and Waves. Because they were super nice and they were a lot of fun.
- When I was in Chemistry has Solutions we had racquetballs and roses. It was really cool. We used a lighted candle on a stick to blow-up balloons and they made a very loud noise. I thought the whole Expanding Your Horizons conference was pretty neat.

Another aspect of the conference that had a significant amount of comments was the Science Mall. As mentioned earlier, most of the girls really enjoyed their Science Mall experience, and the comments that follow illustrate the girl's positive experience.

- Probably the science mall because all you had to do is walk around and look at all of the cool things people had to offer.
- I would tell her about the science fair and the shops. They were cool and I learned a lot.
- If I were going to tell a friend the best thing about EYH was the science mall. I learned different jobs that involve science. I touched a corn snake, and learned about fish in Humboldt Bay.

Finally, some girls had a hard time narrowing down their most memorable experience to one single event, implying that they had an overall great experience with EYH. Some girls stated that everything about the conference was the most memorable:

- I would not tell only one friend I would tell everyone that, this was the best fieldtrip I've been on. I would also tell them what I learned.
- Umm I'm not sure I would probably blurt out everything.
- Everything! At first, I went to a class called Making Our World. Guess who was one of the teachers? Lucy, Mouse's mom! And we made routes of a freeway and looked at pros and cons of where we would put them. Then we had a snack and went to our second class. There we made animal print castes and played a type of hide-n-seek with radio collars and antenna. We had a science mall thing and we got to go around and look at different displays and projects.
- I really liked the fact that this is something for girls and it shows that women can do all of this stuff too.

The comments made by the girls about their most memorable experience reveal that the conference touched the girls in several ways. The girls were shown career options, new knowledge, and were provided with an opportunity to gain confidence through the medium of math and science. In general, the girls relayed through their comments that EYH made a positive impact on their lives.

Adult Participants

Demographics

The evaluations for the adult participants were organized similarly to that of the girls (with the exception of grade in school). To determine the demographic information for the adult participants a series of five questions were asked: School name, school location, status, gender, and race/ethnicity. The following section will discuss the outcome of the questions listed above.

Location:

For the 47 adult participants who returned the survey 17 school locations were listed: Eureka, Arcata, McKinleyville, Crescent City, Hoopa, Redway, Willow Creek, Bayside, Lewiston, Rio Dell, Freshwater, Leggit, Ferndale, Scotia, Kneeland, Trinidad, and Blue Lake. The majority of adults (19%) were affiliated with schools in both Eureka and Arcata, and the least amount of adults (2%) were affiliated with schools in Freshwater, Leggit, Ferndale, Scotia, Kneeland, Trinidad, and Blue Lake.

Status:

Another question asked of the adults was that of their status. The respondents were asked to circle the most appropriate response: Parent, Educator, Other. The majority of the adult participants (72%) were parents, 19% were educators, and 9% indicated that they were both a parent and educator. Further the majority of the adult participants were female (89%), and only 11% were male (Table 12).

Table 12: Adult Evaluations Status

Status	Frequency	Percent
Parent	34	72%
Educator	9	19%
Parent and Educator	4	9%
Total	47	100%

Race/Ethnicity:

Finally, as suspected due to the geographic location of the conference, as well as the girl responses, 79% of the adult participants were Euro/Caucasian, 17% were Native American, 2% were Asian-American, and 2% indicated they were something “other” than the choices listed (Table 13).

Table 13: Adult Evaluations Race/Ethnicity

Race/Ethnicity	Frequency	Percent
Euro-American/Caucasian	37	79%
Native American	8	17%
Asian American	1	2%
Other	1	2%
Total	47	100%

Conference Evaluation*Recruitment/Marketing:*

The adult participants were asked a series of questions regarding their experience with EYH. Like the girls evaluations, the first four questions that follow in this analysis were analyzed purely quantitatively. The adults were asked how they heard about the conference; they were given the same options as the girl participants: Teacher, School Counselor, Parent, Friend, News Paper Ad, Classroom Visitor, and Other. The majority of the adults, (50%), heard about EYH from a source other than what was listed on the evaluation. 45% heard about the conference from a teacher, and 11% heard about EYH from both a friend and a newspaper ad.

Recommend Conference:

The adults were also asked if they would recommend EYH to a friend. The results to this question were extremely positive: 84% of the adults stated they would absolutely recommend EYH, and only 16% said they would probably recommend EYH to a friend. Though the results for this question were promising, one must also consider the difference in responses from the girls and the adults. Though the majority of the girls (60%) stated they would absolutely recommend EYH to a friend the number is considerably lower than the 84% of adults. There could be a few possible reasons for this difference. First, there were

fewer adult participants; therefore, there were fewer opinions to be had. Second, the adults may see the bigger picture of the whole experience, thus seeing the importance of getting girls involved in the math and sciences. Or, perhaps the adults had a better overall experience than the girls. Regardless, it is important to take into account the smaller number of adult participants.

Pre/Post Interest in Math/Science:

The last two questions that were looked at purely quantitatively asked the adults about their interest in math/science before the conference, as well as if their interest had increased after the event. The evaluations suggest that the majority of adult participants (81%) already had a previous interest in math/science before the conference, and attending the conference increased their already present interest. A small number of respondents (2%) did not have any previous interest in math/science, but after attending the conference their interest increased; additionally, 2% of the adults reported to have no previous interest in math/science and did not gain any interest after attending the event. Finally, 15% of the adult participants had a previous interest in math/science, but did not gain any interest after participation (Table 14).

Table 14: Adult Participants Pre/Post Interest in Math/Science

Had Interest Before Gained Interest After	Had Interest Before Did Not Gain Interest After	No Interest before Gained Interest After	Did Not Have Interest Before or After
81%	15%	2%	2%

***6 adults did not respond to this question**

The adults were asked a series of questions that allowed for additional comments regarding their ratings of the activities. The following analysis will look at those questions. The questions included in this section look at: The program packets and materials, the guest speaker, workshops one and two, the science mall, and the closing activity.

Program Packets and Materials

Like the girls, when the adults signed in at the conference they were given program packets with information about the conference and the workshops they attended. The adults were asked to rate the packets, as well as offer additional comments about them. All of the adults rated the packets as excellent or good (Table 15).

Table 15: Adult Evaluations Packets and Materials

	Frequency	Percent
Good	16	42%
Excellent	22	58%
Total	38	100%

***Nine adults did not respond this question**

Unfortunately, only a few adults wrote comments in the space provided, which does not allow for much analysis. Due to the low number of responses it is hard to decipher what the respondents liked in particular about the packets, but here are a few comments that express the general consensus of the quantitative data:

- Very helpful and well organized materials.
- Nicely presented
- I knew where to go and what to expect.

Additionally, a few of the respondents used the space provided to offer suggestions about the conference in general:

- Too many people in the A1 line...
- More time between sessions would be helpful

Finally, only one respondent (of the eight who commented) stated that he/she was, “missing some materials, but I got them at the workshop”. In general the packets and materials seemed to be helpful to the adult participants, and the quantitative results show that the packets were helpful to the adults.

Guest Speaker

The adult participants were also asked to rate the guest speaker Dr. Sandra Magnus, as well as to provide additional comments about her presentation. Dr. Magnus’ presentation was well liked by all of the adult participants: 91% rated her as excellent and 9% rated her as good. The comments written about Dr. Magnus were equally positive. In fact, many of the comments made by the adults mirrored that of the girls. For example, many of the adults stated that Dr. Magnus’ presentation was “inspirational” and “motivational”:

- Her presentation was astounding. I feel she was inspirational for me.
- Awesome! Very inspirational...made me want to run back to school so I can be an astronaut too!
- What an inspiring speaker, both because of her background and her motivational skills, thanks!
- Motivating to all. Fascinating. Good message to strive for what you desire.
- Really motivational. Really good quality. It set the tone for the entire conference.

Many of the adults also really enjoyed the movie:

- Loved the video! Would have liked to hear her speak longer.
- Awesome! Great role model! I loved the video.
- Ultra cool talk and super interesting video.
- Exciting speaker, riveting video, very great [role] model...

Finally, Dr Magnus seemed to leave a lasting impression on both the girls and the adults, which the following statements illustrate:

- My daughter turned to me after and said, “Now I want to be an astronaut”.
- What a treat! I watched the girl’s faces as Dr. Magnus spoke, and I could tell they loved her information.
- She spoke to the kids not above. I appreciated her advice on going after the dream keeping your eye on the prize.

There were only a few suggestive comments written by the adults that included issues of Dr Magnus speaking slower. A few girls also discussed the need for Dr. Magnus to speak slower. However, because it was not the content that was critiqued, but rather the delivery, the assumption can be made that her presentation was extremely positive for both the girls and adults.

Workshops

There were five adult workshops at the conference: Striving for Equity, Will She be Ready, Fun and Family, Finding Money for College, and Making Science Fun for Girls. The adult workshops will be looked at collectively as Workshop One and Workshop Two, with the exception of when it is imperative to list a particular workshop title. The adults rated workshops One and Two similarly (Table 16).

Table 16: Adult Evaluations Workshop Scores

	Workshop 1		Workshop 2	
Ratings	Frequency	Percent	Frequency	Percent
Excellent	20	48%	14	39%
Good	18	43%	19	53%
Fair	4	9%	3	8%
Total	42	100%	36	100%

***5 adults did not respond to workshop 1 question**

***11 adults did not respond to workshop 2 question**

The majority of adults enjoyed both sets of workshops, with only a slight difference in numbers. That is, Workshop Two had a slightly lower rating, than Workshop One, with more adults rating it as good rather than excellent. Overall the qualitative data is pretty consistent with the rating scores. The adults had many positive things to say about the workshops in general:

- Very stimulating discussions.
- Great help to begin search for money.
- Great resources given out.
- Good diverse panel with different viewpoints and good ideas.
- Confirmed/reinforced what I do as an educator and parent.
- I really enjoyed the instructors they made learning fun.

There were also some comments made regarding the need for more time:

- Excellent panel of speakers more time for two workshops.
- Very valuable information...More information than time.

Additionally, a few comments made suggested that some of the workshops were not necessarily what the respondents expected. The two workshops that had comments reflecting this were: Making Science Fun for Girls and Will She be Ready.

- Interesting, but I don't know how it relates to making Science fun for girls? Maybe I was in the wrong room.
FH118??
- Wasn't really what they talked about.

- I didn't feel the group stuck to the topic, but I enjoyed the panel. (Would have liked more questions from audience than from moderator though).
- Workshop B Will She be Ready): Title didn't really match content...

Finally, it is important to note that though the workshop "Finding Money for College" had quite a few positive comments there were also a notable amount of negative ones. For example, a few of the participants felt the speaker to be "dry", even though he offered some valuable information:

- Dry presenter, but valuable information.
- The presenter was very fair, while finances are a consideration, I would have appreciated more coverage on other aspects besides what was given.
- The instructor was boring and was not very informative. He was unable to answer many questions.

In sum, both sets of workshops received generally positive comments; however, there were a few comments that entailed constructive criticism, which is exactly why there was a space provided for comments. According to the comments made by the participants, future workshop presenters should consider matching the title of the workshop to the content, and offer more interactive presentations.

Science Mall

The science mall was enjoyed just as much, if not more, by the adult participants as it was by the girls. 68% thought that it was excellent and 32% thought it was good, there were no ratings less than good given by the adults. The comments given by the participants were right in line with the ratings:

- Very exciting exhibits could tell [a] lot of work and enthusiasm of "presenters".
- Fascinating stuff! I especially liked the snakes and the crawly things. Lot's of interesting and thought provoking exhibits.
- Great presenters engaging, informative, not over-whelming.
- Great! Very nice, loved the hands on activities.
- Very interesting a wide variety of fields to study and job opportunities.
- It was really cool. Lot's to do. Lot's of fun. Information for not only kids but adults.

Though almost all of the comments were positive, there were also a few comments made that offered suggestions, most having to do with time, but also a few that dealt with how the booths were presented:

- Great! I wish I had a little more time to see it. Awesome variety!
- Excellent opportunity. I think if you have the displays listed on the order form, our time would've [been] used more efficiently we only saw a few. (We could plan ahead)
- Many interesting booths. Some could be more interactive.
- Great more hands-on would be greater.

Both the girls and adults mentioned issues of time and how they liked the idea of hands-on activities. These two issues might be considered for the next conference, because they were seen over and over again not just for the science mall, but for the workshop activities as well.

Closing Activity: What's My Line?

For the last activity the ratings were similar to that of the girl participants. That is, only 26% of the adults rated it as excellent and 48% rated it as good. A significant number (17%) rated it as fair, and 9% rated it as poor. These ratings are considerably lower than any of the other activities (Table 17).

Table 17: Adult Evaluations Closing Activity

Rating	Frequency	Percent
Excellent	6	26%
Good	11	48%
Fair	4	17%
Poor	2	9%
Total	23	100%

***24 adults did not respond to this question**

However, almost all of the adult comments (with the exception of a few suggestions) were positive. Most of the comments revealed that the adults thought the closing activity was “fun”:

- Had a fun time
- Entertaining- kids had fun.
- Fun! The girls seemed to like it.
- Cute idea, encourage thinking.
- Got the kids involved.

There were only two participants who made suggestions: One suggested that it needed to be better organized, and the other suggested using ten girls from each grade for the activity. The quantitative data suggests that both the girls and adults did not particularly enjoy the closing activity; therefore, in the future some changes should be made regarding it.

Why EYH?

There were quite a few different reasons why the adult participants chose to attend the conference. However, there were four major themes within the responses, and many of the responses revealed that their daughters were the most significant influence in their decision to attend: The daughter wanted the parent to come, to support/encourage daughter, and to broaden their daughter's outlook of math and science (Table 18).

Table 18: Why Did You Come to EYH?

1. Daughter asked them to come
2. To support/encourage daughter
3. To expand daughter's outlook on math/science
4. To increase girls interest in math/science

Quite a few respondents discussed how it was their daughter that asked him/her to come to the conference:

- Daughter's insistence.

- My daughter brought home the flyer and wanted to come.
- My daughter invited me! School transportation is a plus!
- My daughter wanted me to come.

There were also some participants who came to EYH in order to support or encourage their daughter, for example a few participants wrote:

- To support my daughter and further her preparation for higher education.
- Because I think education is important and I want to encourage my children to have fun and learn.
- My daughter has an interest in science and math and I want to find a way to encourage her.

Finally, many adults mentioned that they wanted to broaden their daughter's outlook of math and/or science:

- We want our daughter to recognize educational/career opportunities in the sciences.
- To get my daughter interested in math and science fields.
- To broaden my daughters outlook on careers in the science field.

There were also a few comments made by educators. The educators discussed the importance of getting girls interested in math and science, which was their main motivating factor in attending. For example one educator wrote, "I've brought student groups in the past and they've really enjoyed the experience. The conference shows the importance of classroom studies and how that translates to careers and it's fun"!

Liked Least About the Conference

The majority of adult comments, when asked what they liked least about the conference, referred to issues of time or scheduling difficulties. This seemed to be a major theme throughout all the participants' evaluations, both the girls and the adults (Table 19).

Table 19: Liked Least About the Conference

1. Issues of Time
2. Scheduling difficulties

When it came to issues of time some adults discussed allowing more time for workshops and keeping strict time limits to allow for breaks:

- Workshop times should be 10 min. or so longer.
- Missed snack at conference. Running over keep strict time limits if possible and let people pursue individual questions.
- There was no break for us between workshops B and F which made for a bit of a long morning (with no break for food or bathroom!)...
- Not enough time in workshops missed breads that was ok
- Lunch period too long. Some people travel far; seems time could be organized more effectively.

Another concern discussed was the need to consider those who traveled long distances:

- ...Also we came a long distance and could have used an extra hour or two to get here. Can you consider starting at 9:30 or 10 next time?
- No tables to eat lunch at. Some people drive a great distance. It was silly to keep us for a game show in order for students to receive a T-shirt. This could have been done at another time.

Finally, there were a few comments made regarding the individual workshops that warrant consideration:

- The adult workshops didn't sound as fun as the kid workshops!
- (Workshop B Will She be Ready): Title didn't quite match content. I expected more practical advice and...philosophy. (Workshop D How to choose a University): The handout was a bit disorganized. Perhaps follow order of sheets in presentation.
- Fun and Family needed more activities for the family.
- I wanted to go to more parent workshops.
- No. B workshop could have got away from so much gender talk (especially of the past).

Considerations for future conferences may include: Allowing more time for workshops, a later start time for those who travel long distances, and more interactive workshops with clear titles. Time is almost always going to be an issue when it comes to big events, and though it is nearly impossible to stay completely on time, perhaps allowing for more flexibility in the schedule could fix this problem.

Most Memorable Experience

When asked what their most memorable experience was at EYH most of the adults discussed hearing Dr. Magnus speak and there were also some comments made regarding the conference and its goals (Table 20). Overall it appears that Dr. Magnus's presentation made a lasting impression on all of the participants both young and old.

Table 20: Most Memorable Experience

1. Guest Speaker (Dr. Magnus)
2. Conference goals

For example, many adults discussed how they enjoyed hearing Dr. Magnus speak as well as watching her video:

- It would have to be about Sandra Magnus... it is inspiring to hear about those who reached far enough to grab their dreams.
- The astronaut!! So exciting to meet her and she was a great role model. Also, the video was wonderful I loved the humor!
- Listening to DR. Magnus was fun and entertaining her video was great.
- Listening to Dr. Magnus and watching her video from her mission to the space station was the most exciting and memorable thing I will take away from this experience. I can't think of a more inspirational role model for women (young and old!) Thank you for bringing her here!

A few comments were also made regarding the conference and its goals:

- The conference is a great resource and support for both children and adults. It got me thinking about how I can help my daughter now and down the line.
- The conference was very moving I love how the women encouraged our young girls to follow their dreams and value their education...Dr. Sandra Magnus, I thought was both fascinating and inspiring...I think you were very generous with the snacks and T-shirts.

Finally, one adult discussed the lasting impact of EYH:

- I plan to convene some friends and their families with a potluck to continue discussion and share info from the workshops. I will first say how exciting the opening presentation was, and motivating and interesting the workshops were. The whole Conference is a great idea, and I can't wait to bring my other two daughters!

Overall, the adults really enjoyed the guest speaker; therefore one might consider having a guest speaker of similar caliber and enthusiasm in the future. Both the adults and girls seemed to really enjoy the video along with the presentation, which is something to consider, especially for the girls who might have some difficulties sitting for any length of time.

Volunteers

The volunteers were those who volunteered their time with EYH by either recruiting girls to the conference, preparing for the event, or helping the workshop presenters. The 2003 conference had a total of 91 volunteers. Unfortunately only three of the volunteers filled out evaluations. Therefore, the data that is presented in the following pages does not necessarily represent all of volunteers who participated in the conference. However, because the three volunteers took the time to discuss their experience a brief analysis is warranted.

Demographics

The volunteers were asked the following three questions in order to obtain demographic information: Their status, gender, and their ethnic background. Of the three volunteers who responded 2 were students and one classified him/herself as "other". Two of the volunteers were female and one left that portion of the evaluation blank. All three volunteers were Euro-American.

Conference Evaluation

In addition to demographic questions the volunteers were also asked questions regarding their general experience of volunteering for EYH. This was the first year that all three respondents had volunteered for EYH. Additionally, all three stated that they would volunteer in the future, and all had volunteered their time by assisting workshop presenters.

Informed About the Conference

The volunteers were asked if they agreed with the following statement: EYH contacts kept me informed about the conference. Of the three respondents two strongly agreed that their contacts kept them informed and one only agreed. Therefore, the overall rating was good. When asked to comment on this question only one respondent discussed his/her experience, "Reminder e-mail was great! If you hadn't sent it, I wouldn't be here"!

Volunteer Dinner was Helpful for the Conference

Prior to the conference a dinner was held for the volunteers in order to acclimate them to EYH. The volunteers were asked if they agreed that the dinner was helpful in orienting them to the needs of the conference. Only one of the respondents attended the dinner, and that respondent agreed with the question; unfortunately he/she did not provide any comments as to how it could have been more helpful. The only respondent who provided comments stated that, "I was unable to attend".

Potluck Dinner

In addition to the volunteer dinner, the volunteers who visited schools to recruit students had a potluck to orient them to the task. The volunteers were asked if the potluck dinner made them feel comfortable about making a school visit. This question was only applicable to one respondent, who stated that she/he agreed. Again, this volunteer did not state how it could be improved. The only volunteer who responded did not attend the potluck.

Matching Interests to EYH Needs

Next, the volunteers were asked if their interests were matched with the needs of EYH. Two of the three respondents stated that they strongly agreed, and one respondent agreed. The respondent who only agreed wrote, "I'm not really into dentistry but since I wasn't sure I was coming until last night, so it wasn't anybody's fault"! Of the two volunteers who strongly agreed with the statement one wrote, "I'm a botany major and I assisted with the greenhouse workshop. I loved it! The other respondent did not comment on this question.

Felt Connected to the EYH Conference Team

The EYH contacts, the volunteer dinner, and the potluck were all a means to create an atmosphere in which the volunteers felt connected to the conference team. In order to determine if these attempts were helpful the volunteers were asked if they felt connected to the EYH conference team. Only one of the respondents strongly agreed, and the other two agreed. Something to consider for this evaluation item is that not all of the volunteers, who responded, attended the dinners, which could make an impact on the degree of connectedness that was felt with the conference team. None of the respondents provided any comments regarding this question.

Enjoyed Volunteer Work

Finally, the volunteers were asked if they enjoyed their volunteer work for the EYH event. All three volunteers stated that they strongly agreed, which implies that they had an overall good experience with the conference. Only one volunteer commented on the question stating: "I loved it"! The qualitative portion of the evaluation will give a closer look as to why the volunteers decided to volunteer and what they liked the most and the least about the conference.

Like the other evaluations the respondents were asked three open-ended questions regarding their personal experience with the EYH conference. The volunteers were asked why they decided to volunteer, what they liked least about the conference, and what their most memorable experience was. All three of the volunteers responded to the open-ended questions, which will hopefully allow for a greater understanding of their answers to the previous questions.

Volunteer with EYH

First, the volunteers were asked why they decided to volunteer with EYH. One volunteer felt it was her “duty” to get others involved in science: “I am a female science major, so I felt it was my duty! Besides, I want everyone to like science as much as me”. The other volunteer wanted “to become more involved in the community”. When the workshop presenter’s data is reviewed it will be interesting to see if they were involved with EYH for similar reasons.

Liked Least About the Conference

All of the participants including the girls, adults, volunteers, and presenters, were asked what they liked least about the conference. From every group of participants there were comments regarding scheduling problems. For example, one volunteer wrote, “the scheduling mix-up that happened with my second group”. Another volunteer expressed that “it would be nice to have a few minutes to get to know the presenters before I brought the girls to the workshop”. Finally, one volunteer said, “many of the young ladies expressed that they wish we did this every year”.

Most Memorable Experience

When asked to share their more most memorable experience with EYH the volunteers responses were right in line with other participants. That is, two of the three discussed the impact of Dr. Sandra Magnus:

- I loved Sandra Magnus’ talk.
- Hearing Dr. Magnus talk. It was really inspiring for me.

Finally, the last response illustrates what EYH is about, and the volunteers experience was shown to be extremely positive: “It was wonderful to know the girls and hearing all of their ideas and interests. It is a wonderful feeling to see young ladies inspired and maintaining a sense of direction for their future. It was great to be a part of such a wonderful learning experience”.

Workshop Presenters and Science Mall Exhibitors

Demographics

Status

There were 93 workshop presenters who participated in the conference, and 43 presenters completed the evaluation. Ninety five percent of the presenters were female and 5% were male. Additionally, the majority (40%) of the presenters were professionals, 23% were students, and only one respondent was a student/professional/educator (Table 21).

Table 21: Presenter/Exhibitor Status

Status	Frequency	Percent
Professional	17	40%
Student	10	23%
Educator	7	16%
Other	5	12%
Educator/Professional	3	7%
Student/Educator/Professional	1	2%
Total	43	100%

Race/Ethnicity

As the other respondents stated, the majority, or 86%, of presenters were Euro-American/Caucasian, 5% were Hispanic, and 2% were Asian-American, Native American, Asian-American/Euro-American, or “Other” (Table 22).

Table 22: Presenter/Exhibitor Race

Race/Ethnicity	Frequency	Percent
Euro American/Caucasian	36	86%
Hispanic	2	5%
Asian American	1	2%
Asian American/Euro American	1	2%
Native American	1	2%
Other	1	2%
Total	42	100%

***1 presenter/exhibitor did not respond to this question**

Conference Evaluations

Has Volunteered with EYH in the Past

The presenters were asked three questions that were analyzed purely quantitatively regarding their experience at the conference. The first of the three questions asked the presenters how many times, including this conference, they had volunteered with EYH. The responses ranged from 1-6 times. For the majority, a little more than half, of the presenters/exhibitors this EYH conference was the first time they had volunteered. A quarter of the respondents had volunteered once before, and only one respondent had volunteered the past six conferences (Table 23).

Table 23: Times Volunteered for EYH Including 2003

Number of times	Frequency	Percent
1	21	51%
2	10	24%
3	4	10%
4	3	7%
5	2	5%
6	1	2%
Total	41	100%

*** 2 presenters/exhibitors did not answer this question**

Willingness to Participate in the Future

Another question asked was: Would you be willing to participate in a future conference? Almost all of the presenters, 95%, stated that they would be willing to participate in the future, and only 5% stated they would not.

Exhibit Classification

Finally, the presenters/exhibitors were asked to classify their session/exhibit. For this question they were asked to write in their response. The table below shows the breakdown of classifications, with the majority of presentations being either oceanography or biology (Table 24).

Table 24: Exhibit Classification

Exhibit	Frequency	Percent
Biology	5	13%
Oceanography	5	13%
Medical	4	10%
Chemistry	2	5%
Civil Engineering	2	5%
Computing	2	5%
Geology	2	5%
Muscle Power	2	5%
Zoology	2	5%
Blood Bank	1	3%
Botany	1	3%
Earth Science	1	3%
Ecology	1	3%
Epidemiology	1	3%
Forestry	1	3%
Home Technology	1	3%
Math	1	3%
Meteorology	1	3%
Natural Resource	1	3%
Science	1	3%
Veterinarian	1	3%
Wildlife	1	3%
Total	39	100%

*** 4 presenters/exhibitors did not respond to this question**

Like the other evaluations the presenters/exhibitors were asked a series of questions, which asked them to circle the response they most agreed with, as well as to write additional comments. The following seven questions were set up in this manner.

Age Appropriateness

First, the presenters/exhibitors were asked if their activities were age-appropriate for the girls who attended. The majority of respondents, 73%, felt strongly that their session was age appropriate, and only 2% felt that their session was not age appropriate (Table 25).

Table 25: Session Was Age Appropriate

Response	Frequency	Percent
Strongly Agree	30	73%
Agree	10	24%
Disagree	1	3%
Total	41	100%

***2 presenters/exhibitors did not respond to this question**

Unfortunately only four commented on this evaluation item. Two of the comments made suggested that their session was age-appropriate, and the other two seemed to feel that it could have been more so:

- The girls understood the concepts presented.
- The girls understood the content well.
- Next time I'll have a hands-on activity as well.
- Hard not to use bigger words for them to understand.

Because only a few respondents commented it is hard to discover how they felt they could have improved their presentations (at least those who only agreed). However, the quantitative portion of this question has shown that most of the presenters/exhibitors generally felt their activities to be age-appropriate.

Girls Seemed Interested in Activities

Next, the presenters were asked if they agreed with the statement: The participants in my session seemed generally interested. 51% of the presenters strongly agreed with this statement, 46% agreed, and only 2% disagreed. The few who commented on this item had generally positive things to say:

- One girl asked, if chemistry class was available in high school.
- Most girls asked questions and participated.
- Mealworms were a huge hit.
- Very excited to make a cast of animals.
- 2 pre-arranged volunteer blood donors.

There were also a few respondents who relayed that though not all of the participants showed the same interest, the ones who did seemed to really enjoy the activities:

- The girls who were interested were really interested and enthusiastic.
- Some seemed interested and participated. Others didn't appear as interested.

The few comments that were written seemed to reflect the quantitative data. That is, most of the comments were positive and showed that the participants were eager to learn and seemed very interested in what they were learning. However, in the future if more hands-on activities were implemented (as suggested by the girls) it could bring higher ratings for this item.

Room Properly Equipped

The third item in this section asked the presenters if they agreed with the following: The room/space was properly equipped for my session. Most of the respondents (69%) strongly agreed with this statement, while 31% only agreed. Most of the comments written regarding this item were positive; with only a few comments expressing difficulties:

- The overhead bulb was out had to borrow from the next room.
- Field house lights were loud.
- Since it was a computer lab, it was locked. We had trouble getting in.

However, the majority of the comments were positive:

- Having a lab room worked well.
- Requested a specific lab because I knew the layout and its accessibility to the stockroom and the chemicals I needed.
- We found a space that worked well, within the nearby areas.
- Thanks for the microscope. It added a lot to the display.
- Great amount of room.

It appears that the few difficulties that occurred could easily be overcome with better communication. Another possible solution would be a room check done by either the presenters or volunteers prior to the conference. It is not unlikely to have at least a few difficulties when organizing a big event, and overall the respondents seemed satisfied with the outcome.

EYH Contacts Kept Me Informed

When asked if they agreed that the EYH contacts kept them informed about the conference the majority of the presenter/exhibitors (60%) strongly agreed, 46% agreed, and only 2% disagreed. Only two respondents commented on this item stating:

- Barb Peters did a GREAT job!
- Thanks, Leslie.

Though the majority stated in the quantitative portion of the question that they strongly agreed with the statement, it would have been helpful to receive more comments on this item. It is hard to discern what could have been done to improve the information being relayed to the presenters without more information from the respondents.

Contacts Supported Session Needs

Fifth, a high majority (76%) of the presenters/exhibitors strongly agreed with the statement: EYH contacts supported my session needs. Where a quarter, or 24%, only agreed with the statement. It is positive for EYH that all of the respondents at least agreed with the above statement; however, 24% is still a significant number of people who did not strongly agree that their session needs were supported. Due to the few number of written responses it is hard to tell what improvements could be made in the future. Of the four presenters who did respond three were positive and only one discussed a difficulty that occurred.

- Thanks, Leslie
- Supplies were delivered and student help came through.
- Awesome.
- Only complaint was locked door.

Without more information from the respondents it is hard to conclude what could have improved their experience. Hopefully, the open-ended questions will provide more insight as to what improvements can be made for future conferences.

Dinner Helpful For Conference Preparation

Next the respondents were asked if they agreed with the statement: The volunteer dinner was helpful for conference preparation. For the respondents that attended the dinner 69% strongly agreed and 31% agreed with this statement. There were about 15 respondents who stated that the question was not

applicable, because they were unable to attend, and many of the comments written in regard to this question show the high number of respondents that had schedule conflicts with the dinner:

- I missed it! Great idea to hold one, though!
- Couldn't attend.
- Sorry way too much else going on!
- I am truly sorry I missed it.

However, those who did attend the dinner had positive things to say about it:

- Great food!
- Very helpful for 1st time volunteers.
- I think this year's session was better than, the two in the past I attended.
- Good info presented, but I was on a tight schedule and would have appreciated starting on time.

In sum, nearly 1/3 of the respondents were unable to attend for one reason or another, which is a pretty high number. Future considerations might include offering a few smaller dinners, so that people with different schedules have the opportunity to attend. The comments from those who were able to attend were positive, which suggests that the general structure and information of the meeting was useful to the presenters and exhibitors.

Enjoyed Presenting/Exhibiting for the EYH Conference

Finally, the presenters/exhibitors were asked to respond to the statement: I enjoyed presenting/exhibiting for the EYH conference. The responses were extremely positive: 85% strongly agreed and 15% agreed. This is the highest rating so far, suggesting that the overall experience was extremely positive. The comments were right in line with the ratings. For example one respondent wrote, "I love this conference! I like to get other people interested, especially girls". Others wrote:

- This was a lot of fun!
- It is always great to see the girls get involved and enjoy themselves (and maybe learn something?).
- Always hard to connect with this age group. This was the best yet!
- So much fun!

The next section will offer a greater explanation as to why the presenters and exhibitors chose to volunteer their time, what they liked least about the conference, as well as a deeper understanding as to why they enjoyed this year's conference. As with the other evaluations the questions that follow were completely open-ended, with the intention of allowing the respondents to offer their personal experience with EYH.

Why Volunteer for EYH?

In hopes of better understanding what motivated the presenters and exhibitors to volunteer at the conference they were asked why they decided to volunteer with EYH. The respondents gave many different reasons; however, there were a few that were seen over and over again (Table 26).

Table 26: Why Volunteer for EYH

1. Encourage girls interest in math/science
2. Wanted to share love of math/science with others
3. Support for organization (EYH)

For example, one major motivating factor was to encourage the girl's interests in math and science:

- I wanted other girls to become more aware of their career possibilities.
- I think it's important for young girls to see and speak with women in jobs that are not always traditional. To encourage young women into the field of science.
- 10% women in IT professional programs now. ☹
- I feel it is so important to encourage young women to take math and science in school. The girls always seem interested in physical/occupational therapy.
- To encourage young women into the file of science.

Additionally, some presenters were motivated by their personal passion, and simply wanted to share it with the girls:

- Chance to tell kids about engineering.
- Most people think all zookeepers do is clean up poop. It's nice to show other sides of the job.
- It's fun. As a biology geek, I like to get other people interested, especially girls.
- It's a pleasure to share my delight in my profession and to be a female role model for the girls.
- Because I'm an oceanography club member and it was fun to show younger people.
- To educate and share with other girls about my passion.

Finally, some felt that EYH stands for a good cause, and they wanted to support the organization:

- Good cause, positive female role models.
- Because I believe in what it is trying to do.
- It's a great cause! The girls always seem to have fun and get excited!

The majority of the comments suggest that the two main reasons for volunteering were to encourage the girl's interest in math and science as well as to share a personal passion of the field. There were also a few respondents that stated they had volunteered in the past and had a good experience, which led them to volunteer again.

Least Successful About Session

To find out what could be improved for future conferences the presenters and exhibitors were asked what they found to be the least successful about their session. The responses varied, but there were a few themes that fell right in line with responses from the girl and adult participants (Table 27).

Table 27: Least Successful About Session

1. Need for more time
2. More hands-on activities
3. Low number of girl participants

For example, many of the comments suggested the need for more time:

- The first speaker running overtime.
- Would've loved to have more time! ☺
- Too little time for all the girls to see all the booths.
- Too little time (understandably).

Additionally, some of the presenters felt that they needed to do more hands-on activities; the girl and adult participants in their comments also mentioned this:

- Should do more hands on.
- Could have used slightly more interactive activities.
- I needed to have more hands-on activities that everyone in the group could do.

Another concern voiced was that of the low number of participants. For example a few presenters wrote:

- The low number of girls.
- The number of participants. I only had four.
- A few more participants would have been nice but the one-on-one help was easier with a smaller number.

There were also a few comments made about personal organization, the girls not cooperating, and age appropriateness. However, the majority of the comments involved issues of time and the lack of hands-on activities, which the girls and adults seemed to be agreement with. Therefore, future considerations should involve dealing with time issues (not enough of it), and having presentations that involve interactive or hands-on activities.

Most Memorable Experience

Finally, the two major themes that arose from the presenters/exhibitors when asked about their most memorable experience were: Hearing the astronaut speak and the general interest and/or enthusiasm of the girls (Table 28).

Table 28: Most Memorable Experience

1. Guest speaker (Dr. Magnus)
2. Enthusiasm of girls

For example, many of the presenters discussed how much they enjoyed hearing Dr. Magnus:

- Sandra Magnus! Exhilarating!
- That Sandra Magnus was the keynote speaker and she is such a great role model for young women.
- Astronaut is a great speaker!
- The “coolest” thing this time was the presentation by Sandra Magnus. All of the girls were bubbling over with excitement!

Additionally, there were also quite a few comments regarding the girls general interest in the presentations:

- I enjoyed hearing kids say “Oh wow!” when they were successful with the science mall project I had arranged for them.
- The enthusiasm of the girls was exciting
- All the girls seemed excited to be there.
- That the girls were generally curious about the station.
- The girls really enjoyed seeing and doing experiments and their appreciation was great!
- Girls being amazed and “grossed out” by photos of skin diseases.
- That the girls were asking questions and I enjoyed answering them as if I felt important.
- Girls were very interested and impressionable. It feels great to know that I may have made a difference in their lives.

Finally, there were a few responses regarding the use of a microscope for a workshop, but the majority of responses relayed that Dr Magnus and the girl’s interest was the most memorable. It is extremely positive that the workshop presenters felt such a connection with the girls involved in the conference, and from the girls comments it appears that the connection was mutual.

Recommendations For Future Conferences

Though there were a few suggestions made for future conferences by many of the participants there were also many extremely positive comments made regarding their overall EYH experience; which suggests that the conference as a whole was a big success. Upon reviewing the data of the girl and adult participants, as well as the volunteers, presenters, and exhibitors, there are some distinctive themes that appear consistently throughout the evaluations. It is these themes that will guide the issues to consider for future conferences. In this section both the girl and adult participants will be identified as one group: Conference Participants; the volunteers, presenters, and exhibitors will be identified as another group: Conference Volunteers.

Conference Participants

Maintain Packets and Materials

Both the girls and adults gave high ratings for the packets and materials. The girls really seemed to enjoy the free things, and the adults found them to be very informative and well organized. There were no suggestions made by any of the participants in terms of improvement; the packets were a well-liked piece of the EYH conference.

Secure Another High Profile Guest Speaker/Role Model

All of the respondents discussed how much they enjoyed Dr. Sandra Magnus. She was an excellent choice for a speaker. The girls and adults found her to be extremely inspiring and interesting. In particular, the participants really enjoyed the video portion of her presentation. The only comments made about Dr. Magnus, that discussed room for improvement, were that she spoke to fast, and a few of the girls mentioned her presentation was a little long. In the future choosing a guest speaker like Dr. Magnus would be a great asset to the conference, also using something like the video, or an activity, to keep the girls attention seems to also be imperative. As seen in the evaluations, Dr. Magnus was an ideal speaker, because her career was exciting and her story was inspiring.

More Hands on Time For Workshops and Science Mall

Overall the workshops and the science mall received generally high ratings from all of the participants. However, the suggestion that was seen throughout the evaluations was the need for more hands-on activities. Both the girls and adults felt this was lacking in some of the workshops and some of the science mall exhibits; future presenters should keep this in mind when planning their presentations. Another issue brought up by the participants was the need for more time. This issue was seen over and over again in both the participants and the presenter's evaluations. One way this issue might be resolved is to allow for ten more minutes for each workshop, as well as allowing for more time to view the science mall exhibits. There may be other time constraints, yet because the lack of time was brought up so often adjustments are worth considering.

Change Closing Activity

Though the closing activity received relatively high or "good" ratings, it was still considerably lower than the other activities at the conference. Because its ratings were considerably lower, it is important to rethink this activity for future conferences. Some reasons for the lower overall rating include: It was confusing for some of the girls, it was slow moving, and it was too difficult for some of the girls to follow. In addition, it did not allow for active participation by all of the girls. Therefore, conference organizers should consider creating a different closing activity. It is also important to keep in mind that by the end of the day attention spans run short, and the girls have already taken in a lot of information throughout the day. A game or activity that allows the girls to work in teams might better hold their interest through engaging participation.

Conference Volunteers

Because the presenters/exhibitors and volunteers will be discussed as one group, there is a discrepancy in the questions asked on the evaluations. There were a few questions asked of the presenters/exhibitors that were different than the volunteers. For the purposes of this section, and due to the low number of responses from the volunteers, only the questions that were duplicated from the presenter's evaluations will be discussed on the part of the volunteers.

Reinforce Need for Hands-On Activities With Presenters

The majority of presenters felt that the girls seemed interested in their presentations; however, there were a few comments that suggested that presenters were aware they should have used more hands-on activities. These statements were right in line with the participant's comments, which suggest the need for more interactive activities in the future.

Conduct Room Checks

The evaluations show that for the most part the rooms were properly equipped for the workshops. The few difficulties that occurred could be easily remedied through further communication, and room checks prior to the conference.

Use Regular Emailing Updates

The majority agreed that EYH contacts kept them informed; however, there were few comments made regarding this issue. From the comments made it appears that the e-mails were helpful in relaying

messages. Organizers should consider regular email updates to volunteers regarding conference development and upcoming meetings.

Publicize Dinner Early and Often

Many of the conference volunteers stated that they were unable to attend the dinner due to busy schedules. Perhaps in the future a few smaller dinners could be offered instead of one large one, in order to work with people's busy lives. Those who attended the dinner felt that it was beneficial to their experience, which implies that others would benefit from it if they could attend.

Recommendations given by Both Conference Participants and Volunteers

This question gave the participants the opportunity to discuss what they would like to see done differently. The majority of the respondents discussed issues of time (not enough of it), as well as taking into consideration those who travel long distances. Further, the girls, in particular, discussed sitting for long lengths of time: as is discussed in the theoretical literature on girls in math and science, active engagement throughout all activities is an ongoing goal upon which to focus. Furthermore, time was also a major theme for the conference volunteers. As mentioned earlier, this was an issue for everyone including the participants. In the future it might be worth considering making the conference a little longer, possibly adding 10 minutes or so to each activity. Finally, many of the presenters suggested using more hands-on activities, which is right in line with the participants comments, so hopefully in the future more hands-on activities will be offered.

Program Evaluation: Methodological Recommendations

Workshop Title Data

Allowing the participants to write in the names of their workshops on their evaluation forms generated a great deal of missing and confusing data, which in turn created validity issues. Because of the small workshop enrollments, this problem became a non-issue as we aggregated all data for the "Workshop I" session and all data for the "Workshop II" session.

Recommendation

In the future, if individual workshop level data is desired, accuracy in workshop titles should be ensured by one of the below or other methods:

1. the data should be filled in on the evaluations by organizing staff prior to their dissemination to participants, or;
2. time should be allocated at the beginning of the conference to instruct participants on entering workshop title information correctly onto their evaluation forms.

Qualitative Data Costs

A great deal of administrative time was spent entering qualitative data regarding program packets, guest speaker, Workshop I, Workshop II, Science Mall, and Closing Activity. Many of the comments in this section (questions 10-15) were vague ("cool"; "awesome"; "had fun") and did not substantially add to the quantitative assessment in this section of the evaluation. More specific comments were generated as the participants were asked in general (questions 17 and 18) what they liked least about the conference,

as well as what conference memory they would share with a friend. (Similar issues were noted with the presenter and exhibitor quantitative items that also included space for qualitative comments.)

Recommendation

In the future, eliminate the qualitative data collection for the above participant program items. To generate more nuanced workshop evaluation data, consider using a different scale (i.e. Agree/Disagree 4 points Likert Scale) and expanding the question set for each workshop to include several dimensions of workshop success such as:

1. Hands-on learning activities helped me learn.
2. The Content was Interesting
3. Presenter made me feel comfortable

For the presenter and exhibitor evaluation form, future evaluations should eliminate the qualitative portions of questions 8-14 and add an additional open-ended question in the last set of questions that requests presenters and exhibitors to address specific issues that generated lower evaluation scores (if any) in the quantitative section.

Double-Barreled Questions

Participant questions 8 and 9 were double barreled in an effort to conserve on space. This of course created validity issues.

Recommendation

As questions 8 and 9 were the only measures approximating any type of longitudinal change, future evaluations should address the double-barrel problem.

Volunteer Evaluation Low Response Rate

We did not have a good mechanism for disseminating and collecting volunteer evaluation forms; therefore, we received little feedback from that group of program volunteers. They received their t-shirts at the beginning of the conference and did not necessarily stay the entire program. So at the end, when evaluations were collected, many volunteers had already left.

Recommendation

Use email to disseminate and collect evaluation data from volunteers.

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