

Latinas en Ciencia
Final Report of Evaluation Activities



by
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Latinas en Ciencia
June 2001–November 2002
Final Report on Evaluation of Activities and Results

Goals:

- 1) Document programs offered and number of participants in each program.
- 2) Track interest and involvement with science activities.
- 3) Assess girls' learning of science methods and concepts.
- 4) Assess internal culture of the museum.

Methods

The methods used for collecting data related to the *Latinas en Ciencia* program included:

- 1) Teacher description of the different clubs,
- 2) Attendance records,
- 3) Participant evaluation of activities offered,
- 4) Teacher evaluation of participant learning,
- 5) Museum organizational development and strategic plans,
- 6) Museum staff surveys,
- 7) Volunteer assessment of the museum environment, and
- 8) Parent Focus Groups.

Results

Goal 1: Document programs offered and number of participants in each program.

OMSI offered three outreach *Latinas en Ciencia* clubs, a *Latinas Camp-In*, and 13 *Domingos Latinos*. The three clubs were held in Tigard, Oregon, Portland, Oregon (identified as Claravista), and White Salmon, Washington. Documentation on the clubs includes a description of the programs in each school, the number of girls enrolled, and average attendance. Documentation on the camp-in includes a description of the activities and the number of attendees. Documentation of *Domingos Latinos* includes the number of attendees.

Latinas en Ciencia* Club descriptions and attendance

*The initial goal of the *Latinas en Ciencia* program was to have 12 girls enrolled in each club.

Tigard Club (a suburban club)

The Tigard club was held at Bridgeport Elementary School located in a suburb of Portland, Oregon. It was held once a week from 1:00–2:30 p.m. (during school hours).

Participants: The Tigard club had 12 girls enrolled between the ages of 8 and 10 (grades 3–4). They were very consistent in the participation and the instructor generally received reports when one of the girls would not be attending. One of the girls had problems arriving on time because of a math class. The club met 26 times between

October 2, 2001, and May 28, 2002. Attendance records are available for 16 sessions. For these sessions, the average attendance was 11.

Support: Cecilia Sibelian, a Bridgeport ESL teacher, provided wonderful support for the OMSI instructor and the girls. She participated in all the activities and she motivated the girls. All the ESL teachers were supportive of the *Latinas en Ciencia* program. Cecilia and other staff members from Bridgeport participated in activities such as overnights, trips, and *Domingos Latinos*.

Environment: For our sessions we used the ESL classroom that had enough space to conduct the activities and necessary facilities such as tap water, paper towels, and soap. The girls were familiar with the environment and supplies in the classroom. The girls usually helped clean up and to maintain the classroom.

Transportation: The club was scheduled during school hours to facilitate participation. More than 75% of the group had transportation issues and their participation was impossible after school hours.

Claravista Club (an urban club)

The Claravista club was held in the Baltazar Ortiz Community Center located in a Portland inner-city apartment complex. The club met once a week from 3:00 to 4:00 p.m. (after school).

Participants: The Clara Vista club had 10 girls enrolled between the ages of 8 and 10 (grades 3–4). Only 4 girls participated consistently. The instructor did not receive notification when girls would be absent. Sometimes the participants were late (10–15 minutes). Some of the girls were involved in more than two after-school activities, including the *Latinas en Ciencia* Club. The club met 21 times between October 17, 2001, and May 16, 2002. Attendance records are available for 10 sessions. For these sessions, the average attendance was 6.

Support: Generally, somebody was at the center to support after-school activities. On three occasions the OMSI instructor received assistance. Raquel Aguillón enthusiastically participated in the *Domingos Latinos* events and camp-in activity.

Environment: The sessions took place in two of the classrooms in the community center. The classrooms were spacious and clean. One of them had tap water and paper towels, the other one didn't. The girls occasionally helped in the clean up process after the sessions. The classrooms were always in use for various groups and after-school activities. A couple of times program staff and participants had to wait for a classroom to be accessible.

Transportation: About 80% of the participants walked to the club (they lived across the street). The others carpooled.

White Salmon Club (a rural club)

The White Salmon club was held at Whitson Elementary in White Salmon, Washington (about a 1.5-hour drive from Portland). It was held once a week from 10:30–11:30 a.m.

Participation: The White Salmon club initially had 11 girls enrolled between the ages of 9 and 10. However, two girls moved away in December and enrollment dropped to 9. The girls were very consistent in the participation and the instructor always received reports when somebody was not in a session. The club met 20 times between October 18, 2001, and May 16, 2002. Attendance records are available for 6 sessions. For these sessions, when enrollment was 9, the average attendance was 8.

Support: There was always someone from the ESL department in the classroom during the *Latinas en Ciencia* sessions. They helped with the discipline and supplies issues. Two teachers attended the camp-in activity with the girls. No one from White Salmon attended the *Domingos Latinos* event.

Environment: The sessions were held in the ESL classroom. The room was always clean and had facilities such as tap water, paper towels, crayons, scissors, and tape.

Transportation: OMSI scheduled the club during school hours to facilitate participation. More than 75% of the group had transportation issues and their participation was impossible after school hours.

Camp-in description and attendance

A special *Latinas Camp-In* was held at OMSI on February 1 and 2, 2002. The agenda included:

February 1

- The girls arrived at 4:00 p.m.
- Participated in various activities in the auditorium, such as creating Valentine's Day cards, dissecting a heart, and completing a biology activity (lead by OMSI educators).
- Toured OMSI.
- Performed karaoke.
- Participated in an interactive experience in the KOIN 6 weather station.

February 2

- Watched a JASON project broadcast.
- Completed evaluations.
- Departed 10:00 a.m.

Invitees included girls from the clubs, their sisters, their mothers, and community advocates. Sixty-nine females from the Latino community participated in the camp-in. Thirty-four of the campers were adults; 35 of the campers were girls. Of these 35 girls, 22 were members of one of the *Latinas en Ciencia* clubs (eight from Tigard, nine from Claravista, and five from White Salmon).

***Domingos Latinos* attendance**

Each month OMSI hosted Latino Sunday in which the museum was staffed with Spanish-speaking volunteers. Members of the Latino community were encouraged to attend independently or with one of the several organizations that OMSI awarded group memberships. Table 1 lists the attendance figures for 12 of the 13 Latino Sundays.

Table 1. Attendance for OMSI Latino Sundays

June 2001	42
July	63
August	52
September	17
October	102
November	61
December	121
January	126
February	102
March	94
April	86
May	70

June 2002	Not available
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Summary of programs and attendance

OMSI has been fostering relationships with the Latino community by hosting science clubs in three different communities and creating a particularly inviting atmosphere at the museum during Latino Sundays. Attendance in all of these programs has been encouraging.

Goal 2: Track girls' interest and involvement with science activities.

The girls' interest in science activities was tracked through participant evaluations of the OMSI programs. Participants evaluated club activities, the club overall, and the camp-in. The following evaluation summaries suggest the girls' interest in science activities remained high.

Latinas en Ciencia activity evaluations

Club members were asked to evaluate various activities throughout the year. The evaluations were not made weekly because the instructor discovered she often did not have time to do both the activity and the evaluation.

The evaluations included three to four questions each week. The instructor would code girls' responses into categories that could be quantified. Two questions were particularly relevant to the girls' interest and involvement with the club activities.

Question #1

What did you learn? (¿Qué aprendiste hoy?) The instructor coded each girl's responses to this question into four categories:

- Shows little or no understanding,
- In the process of understanding,
- Shows clear understanding, or
- Shows analysis/higher thinking.

Question #2

How do you feel about today's class? (¿Disfrustaste la clase de hoy?) Girls responded to this question by drawing a face that showed their feelings. The instructor coded the girls' drawings into one of six categories:

- Happy,
- Sad,
- Neutral,
- Surprised,
- Bored, or
- Confused.

Responses

Evaluations were collected from the Tigard girls on 12 occasions, Claravista girls on six occasions, and White Salmon girls on three occasions. The data in Table 2 suggest that the girls most often responded to the question, what did you learn, with an answer that showed they were in the process of understanding or had clear understanding of the activity main message. The data in Table 3 suggest that the girls most often drew a face indicating they were happy about the class offered by OMSI.

Table 2. Club responses to the question, What did you learn?

	Tigard # (% of 131)	Claravista # (% of 35)	White Salmon # (% of 22)
Shows little or no understanding	19 (15)	3 (9)	2 (9)
In the process of understanding	55 (42)	16 (46)	10 (46)
Shows clear understanding	36 (28)	13 (37)	8 (36)
Shows connections between the activities	20 (15)	2 (6)	2 (9)
Shows analysis/higher thinking	1 (1)	1 (3)	0
Absent or no response	13	23	3

Table 3. Club responses to the question, How do you feel about today's class?

	Tigard # (% of 126)	Claravista # (% of 33)	White Salmon # (% of 22)
Happy	119 (49)	32 (97)	22 (100)
Unhappy/Sad	4 (3)	1 (3)	0
Neutral	1 (1)	0	0
Surprised	2 (2)	0	0
Bored	0	0	0
Confused	0	0	0
Absent or no response	18	25	5

Summary of data from 2001–2002 *Latinas en Ciencia* parent focus groups

Parents and guardians of the *Latinas en Ciencia* club members were invited to participate in a 45-minute focus group during OMSI's Latino Sunday on November 10, 2002. Guardians were invited by phone and in writing. Upon invitation, guardians were informed that transportation to the museum could be arranged by bus and/or carpooling. Several of the guardians from Tigard said they would like to take advantage of the arranged transportation. Guardians were also told: their family could attend Latino Sunday for free, the focus group meeting would be conducted in Spanish, the meeting was adult-only, it was preferred that just one adult per family participate in the focus group, day-care would be provided, and each participating family would receive free museum tickets and a \$25 science store gift certificate.

At the time of invitation, several of the *Latinas en Ciencia* girls had moved away with their families. Eight families from Tigard and five families from Claravista still lived in the area. Guardians from six of the eight Tigard families and four of the five Claravista families agreed to participate in the focus groups. Six guardians from Tigard and two guardians from Claravista actually attended the meeting.

OMSI held two separate focus groups with the Tigard and Claravista guardians. Each group was facilitated by a bi-lingual woman who had worked with the club in various ways, but who was not the instructor and not an OMSI staff member. Each facilitator was provided with training, a set of questions, and an assistant bi-lingual note taker. The *Latinas en Ciencia* instructor was not present during the meetings and neither were the girls involved in the club. Guardians were told that they could speak freely about their opinions, that OMSI wanted honest feedback, and that their names would not be associated with their responses.

The results from both focus groups were similar in that guardians had very positive feedback about the club. Because the responses were so similar, the results below have been combined for ease of discussion.

What do you remember your child saying about her experiences at *Latinas en Ciencia*?

In response to this question, all of the guardians' responses suggested their daughters spoke positively about the club while they were at home. For example,

“[My daughter] always came home with really nice comments about the program. She brought home experiments made at the club and she was really enthusiastic about all the activities.”

What are some of the ways that you feel the *Latinas en Ciencia* program affected your daughter?

In response to this question, guardians emphasized that the program encouraged the girls to learn more about science. In addition, one guardian specified “problem solving” and another pointed out that the club helped her daughter better understand science at school.

What, if anything, would you like to see done differently in the OMSI science club?

In response to this question, guardians suggested they might appreciate having their daughter exposed to more environments or contexts. For example, guardians expressed interest in camping trips, field trips, and OMSI visits (including visits to OMSI's submarine, planetarium, and OMNIMAX movie theater).

What kind of roles, jobs, or careers do you think your daughter will pursue as an adult?

In response to this question, guardians suggested a variety of ambitious careers, most of which would require significant science knowledge. These careers included: doctor, computer professional, nurse, lawyer, and a teacher. None of the guardians mentioned the roles of wife or mother.

If you have the chance, will you sign your daughter up for an OMSI science program again?

In response to this question, all the guardians said, “yes.” One of the guardians pointed out that her daughter would like the opportunity to continue the *Latinas en Ciencia* program in middle school.

***Latinas en Ciencia* overall evaluation**

The last day of the club the girls were asked to complete a final evaluation. The evaluation had three questions relevant to the girls' interest and involvement with these science activities.

Question # 1

What was the most interesting activity you did during the *Latinas en Ciencia* program?

Question # 2

The most important thing I learned was _____(fill in the blank).

Question # 3

What would you change to make this experience better?

The responses from Tigard girls are listed in Table 4. The responses from the Claravista girls are listed in Table 5. The responses from the White Salmon girls are listed in Table 6. Overall, the girls shared a common appreciation for “Flubber,” their lessons on the senses, and their OMSI *Latinas en Ciencia* classes.

Table 4. Tigard girls' responses in the final evaluation.

1.What was the most interesting activity that you did during the *Latinas en Ciencia* program? Why?

- *Flubber because it is fun to make and the things that we put in it was Clorox and glue.*
- *I think that my interesting project was Flubber because it was fun.*
- *My favorite thing that I liked was Flubber because it was fun.*
- *I think it was the Flubber because I have done that before.*
- *My Favorite thing was the Flubber because it was fun and interesting. We measured and did lot's of things that we got to make. All of them were fun. Especially OMSI.*
- *My favorite one was when we did the Flubber. Because it seemed fun.*
- *What I like about science is learning it.*
- *I preferred the part of the program about hearing. Because we learned about music and how high and loud things can make you deaf, and you can remain that way I liked this part.*
- *When we did the things of the ears. And when we had the things of the eyes.*

2.The most important thing that I learned was...

- *I learned that about the eyes, nose, hands and mouth.*
- *When we learned how to makes bounce balls.*
- *The most important thing I learned was that our body has a lot of stuff that I didn't know. Like are [sic] ear, I didn't know that it has hair but I know now and I learned more stuff.*
- *I didn't know how to do Flubber but I know how to now.*
- *I learned about eye, ears, taste and movement in OMSI.*
- *About my ears that how they are and how you can become deaf.*
- *The most important thing is science is very important.*
- *Not to listen to music high or loud.*
- *Not to put the music on loud because you cannot have it when you put the music loud.*

3.What would you change to make this experience better?

- *To have another year with Veronika.*
- *That we do OMSI after school.*
- *That we always go to OMSI everyday.*
- *I would like to make different stuff when I'm going to go to the 6th grade now.*
- *I think that OMSI should be after school so we can have more time.*
- *By putting more information and by writing more.*
- *That you can get candy everyday.*

Table 5. Claravista girls' responses in the final evaluation.

1.What was the most interesting activity that you did during the *Latinas en Ciencia* program? Why?

- *Flubber because it was fun to do it and play with it.*
- *Flubber because it was fun making Flubber with Veronica and I had lot's of fun.*
- *My favorite thing when we made pancakes they were so good. And the reason I chose these because I was hungry and I wanted to make pancakes.*
- *Flubber because it was fun to do it and play with it.*
- *Learning about the ear because some music can hurt you.*
- *My interesting thing is when we went to learn about the eyes.*
- *My favorite activity was the hearing. One because we got to hear how people couldn't hear.*
- *Flubber because it was fun to make and play with.*

2.The most important thing that I learned was...

- *About the five senses.*
- *Learning about hearing because I learned that I had hair cells and I didn't know we had something that looked like a snail.*
- *We learned about people that don't see but they do hear.*
- *About the places that are cold I learned that loud music could hurt your ear.*
- *Eyes it was nice that we learn about eyes.*
- *The most important thing that I learned was not hearing loud things.*
- *The most important thing that I learned was not to put loud music on or your hair cells will die and you will not be able to hear.*

3.What would you change to make this experience better?

- *I like it how it was.*
- *I wouldn't change anything because it was all fun. We had a good time with Veronica she was a good girl.*
- *Do more fun things like more experiments or more fun games.*
- *Playing games with Veronica because she is fun.*
- *I well like to have more fun making things.*

Table 6. White Salmon girls' responses in the final evaluation.

1.What was the most interesting activity that you did during the *Latinas en Ciencia* program? Why?

- *Flubber because it is gluey and it is fun.*
- *Flubber because it's fun.*
- *Flubber because it is good.*
- *Flubber making.*
- *The most interesting thing was when we did Flubber and mixed up stuff to see if you could guess what was in it.*

2.The most important thing that I learned was...

- *When we heard something and when we ate pancakes.*
- *When we ate pancakes.*
- *The most important thing I learned was how I use my body to touch and feel.*
- *The most important thing I learned was that eyes have veins and other things to help us see.*
- *Eyes and ears.*

3.What would you change to make this experience better?

- *I wouldn't change anything because it was fun.*
- *I wouldn't change a thing.*

Camp-in evaluations

Camp-in participants were asked to evaluate their experience at OMSI overnight. Two questions were of particular relevance to their interest in this science activity.

Question #1

Did you have a pleasant experience at the camp-in?

Participants were asked to respond with a YES, Sometimes yes/Sometimes no, or a NO.

Questions #2

Would you attend an OMSI camp-in again?

Participants were asked to respond with a YES, maybe, or NO.

Responses to both of these questions were primarily, YES! (Table 7).

Table 7. Camp-in participants' evaluation responses.

	Did you have a pleasant experience?	Would you attend again?
Percent Yes	85.29%	94.12%
Percent No	2.94%	0.00%
Percent Sometimes Yes	2.94%	
Percent Maybe		2.94%

Summary of interest in science activities

The participants' evaluations of their weekly activities, the club overall, and the OMSI camp-in all suggest the girls had high interest in these programs.

Goal 3: Assess girls' learning of science methods and concepts.

After different weeks throughout the year the instructor would evaluate how the girls progressed from a teacher-directed program to a girl-directed program. The progression was rated with a nine-point scale on different criteria from 1 = totally girl directed to 9 = totally teacher directed. The 14 criteria the instructor assessed were:

1. Who decides on the topic?
2. Who specifies the question to be answered?
3. Who chooses the variables to investigate?
4. Who decides which concepts/principles inform the investigation?
5. Who decides what materials are to be used?
6. Who decides on the specific procedures to be followed?
7. Who decides when and how to modify procedures?
8. Who determines what data and how much data to collect?
9. Who writes up the description of procedures actually followed?
10. Who determines the format for recording data?
11. Who decides how to transform the data?
12. Who answers the question/hypothesis?
13. Who guides the thinking of the conclusion?
14. Who determines which concepts/principles to apply when explaining the results?

The average rating among all the girls in each club are listed in Tables 8 through 10.

Important cells to notice are the ones in the far right column. These cells contain the overall average the girls received on each criterion. Those cells that have light shading are below the median of 5. The lighter shading illustrates those criteria in which the girls, on average, exhibited more girl-directed behavior. Those cells with darker shading are above the median of 5. The darker shading illustrates those criteria in which the girls, on average, exhibited more teacher-directed behavior. For instance, in all three clubs, the girls were able to offer more direction on criteria that entailed concrete procedures versus criteria that entailed conceptual thinking. This is probably quite typical among this age group.

The other cells to notice are those in the bottom row of each table. These cells contain the overall average the girls received each week. In all three clubs, there appears to be at least a slight trend that the means grow smaller each week. The decreasing means suggest that the members' behavior was becoming girl-directed behavior and less teacher-directed as they completed each class.

Table 8. Average rating assigned by instructor for Tigard girls' weekly "inquiry based-learning" assessment.

	12/11/01	1/15/02	1/22/02	2/12/02	2/12/02	2/19/02	3/5/02	3/19/02	4/16/02	4/30/02	Criterion Average
Who decides on the topic?	8.92	8.00	7.75	8.10	8.00	8.00	7.73	7.00	6.40	7.25	7.94
Who specifies the question to be answered?	8.75	7.71	7.17	7.90	7.89	7.50	6.91	6.13	6.00	6.67	7.46
Who chooses the variables to investigate?	8.50	8.29	7.83	7.70	7.89	7.50	7.18	7.13	5.80	6.67	7.68
Who decides which concepts/principles inform the investigation?	8.75	8.00	7.25	8.00	7.67	7.42	7.27	6.75	5.80	6.75	7.51
Who decides what materials are to be used?	3.50	7.00	1.50	5.30	5.33	5.67	8.00	5.13	3.40	2.67	4.63
Who decides on the specific procedures to be followed?	3.08	7.00	1.75	5.00	5.00	5.08	6.00	3.88	3.20	3.92	4.30
Who decides when and how to modify procedures?	2.67	7.00	1.83	5.40	5.56	6.00	6.00	3.38	3.80	4.17	4.45
Who determines what data and how much data to collect?	8.58	7.71	7.83	7.90	7.33	7.33	3.27	2.88	6.00	5.33	6.77
Who writes up the description of procedures actually followed?	4.00	7.29	3.75	5.30	5.33	7.08	4.55	3.75	4.80	4.33	5.18
Who determines the format for recording data?	9.00	7.71	7.92	8.10	8.00	7.50	8.36	6.88	6.00	6.00	7.79
Who decides how to transform the data?	9.00	7.71	8.08	7.80	8.00	4.67	5.91	4.25	6.40	6.50	7.10
Who answers the question/hypothesis?		5.43	5.17	6.40	6.22	4.00	5.91	4.63	3.40	4.00	5.26
Who guides the thinking of the conclusion?	7.92	7.57	7.25	8.00	8.11	7.50	7.27	6.50	5.60	6.75	7.38
Who determines which concepts/principles to apply when explaining the results?	9.00	8.71	7.17	8.10	8.13	7.73	7.55	6.88	5.80	7.08	7.72
Weekly average	7.05	7.51	5.88	7.08	7.04	6.65	6.59	5.38	5.18	5.58	

Table 9. Average rating assigned by instructor for Claravista girls' weekly "inquiry based-learning" assessment.

	1/16/02	1/22/02	1/23/02	3/13/02	5/1/02	1/5/02	5/8/02	Criterion Average
Who decides on the topic?	9.00	8.00	7.75	7.00	6.33	5.50	6.75	7.46
Who specifies the question to be answered?	7.50	5.67	6.25	6.25	6.33	5.00	7.00	6.50
Who chooses the variables to investigate?	7.83	5.67	6.50	6.75	6.67	5.50	6.75	6.73
Who decides which concepts/principles inform the investigation?	7.33	6.33	7.25	7.50	6.67	5.00	6.50	6.85
Who decides what materials are to be used?	7.17	7.00	6.00	5.00	3.33	2.00	3.25	5.19
Who decides on the specific procedures to be followed?	4.83	7.00	6.00	2.25	3.00	2.00	2.25	4.04
Who decides when and how to modify procedures?	5.00	6.67	6.00	2.00	2.00	2.50	2.50	3.96
Who determines what data and how much data to collect?	8.00	7.33	7.75	4.75	4.67	4.50	6.75	6.54
Who writes up the description of procedures actually followed?	5.17	4.00	6.25	3.75	4.00	4.50	3.00	4.46
Who determines the format for recording data?		7.00	7.75	5.25	7.00	7.00	6.75	6.74
Who decides how to transform the data?		7.67	8.25	5.25	6.33	6.50	6.75	6.80
Who answers the question/hypothesis?	4.50	4.00	5.25	4.75	3.00	5.00	3.75	4.35
Who guides the thinking of the conclusion?	6.50	6.67	7.50	6.25	5.67	4.50	6.25	6.35
Who determines which concepts/principles to apply when explaining the results?	7.33	6.67	7.50	7.25	5.00	5.00	6.25	6.65
Weekly average	6.68	6.41	6.86	5.29	5.18	4.61	5.34	

Table 10. Average rating assigned by instructor for White Salmon girls' weekly "inquiry based-learning" assessment.

	1/10/02	1/17/02	3/14/02	5/10/02	Criterion Average
Who decides on the topic?	9.00	8.63	7.13	7.57	8.03
Who specifies the question to be answered?	8.00	7.88	6.88	7.00	7.41
Who chooses the variables to investigate?	8.33	7.50	6.88	7.14	7.41
Who decides which concepts/principles inform the investigation?	8.83	7.50	7.00	6.43	7.38
Who decides what materials are to be used?	7.33	3.38	5.13	4.57	4.97
Who decides on the specific procedures to be followed?	8.00	3.38	3.63	2.29	4.14
Who decides when and how to modify procedures?	8.00	3.25	3.25	1.86	3.90
Who determines what data and how much data to collect?	7.17	7.38	2.75	6.00	5.72
Who writes up the description of procedures actually followed?	7.50	3.88	3.38	3.71	4.45
Who determines the format for recording data?	8.83	6.00	5.38	6.86	6.82
Who decides how to transform the data?	8.67	7.00	5.25	6.86	6.77
Who answers the question/hypothesis?	8.33	5.00	5.25	4.00	5.52
Who guides the thinking of the conclusion?	7.67	7.50	6.63	6.43	7.03
Who determines which concepts/principles to apply when explaining the results?	8.83	8.00	6.88	6.43	7.48
Weekly average	8.18	6.17	5.40	5.53	

Summary of girls' learning of science methods and concepts

The inquiry-based assessments completed by the instructor suggest that the girls in the *Latinas en Ciencia* clubs were able to provide some direction about the concrete methods used in the clubs, but the girls were more reliant on the teacher to provide conceptual direction. Still, the overall weekly averages suggest that with each club meeting, the girls tended to provide more direction than they had in prior club meetings.

Goal 4: Assess the internal culture of the museum.

OMSI's internal culture can be described from many perspectives. This following assessment describes four perspectives. First, OSI staff recently completed an intensive organizational and strategic plan development process. This yielded a description of OSI's personality and core values. Second, reports from human resources provide some information on the most common racial-ethnic background represented among OSI staff. Third, OSI staff were surveyed about their awareness and support of *Latinas en Ciencia*, as well as the amount of Spanish they used in the museum. Fourth, volunteers from the Latino community were asked to describe the physical environment of OSI. All four of these perspectives are described below.

OSI's personality and core values

OSI staff worked with Roy Shafer and Strategies for Organizational Change from September to December 2001 to describe OSI's personality, identify its core ideology and values, and create a value-based strategic plan.

OSI's personality was diagnosed using an online survey called *Companies are people, too™*. All paid museum staff working 20 or more hours were invited to complete the survey. The objective of the survey was to describe OSI's personality with respect to the organization's preferred way of focusing energy, gathering information, making decisions, and structuring work. The results of the survey suggested OSI's personality (in Myers-Briggs language) is an ESFJ (nickname is "The Host"). The interpretation is that OSI's

- organizational focus is more extroverted than introverted (e.g., frequent brainstorming and planning sessions, internal communication happens in person or on the phone).
- information-gathering style is more sensing than intuitive (e.g., sets straight-forward, attainable goals).
- decision-making style is more feeling than thinking (e.g., seeks solutions based on company values with impact on people taken into account).
- work style is more judging than perceiving (long-term planning in place).

This knowledge about OSI's personality helped 18 staff members, along with Roy Shafer, develop the organization's core ideology, core values, and core business.

- Core ideology (what we hope to achieve): to inspire wonder.
- Core business (what we do to achieve our ideology): we strive to inspire wonder by providing engaging science learning experiences.
- Core values (why we do what we do): because we value learning, creativity, and integrity.

This knowledge about OSI's core ideology, values, and business helped staff members write a five-year value-based strategic plan (2002–2007) that included strategic objectives and strategic values. The entire framework is illustrated in Appendix A.

With respect to serving Latino audiences, it is important to note that the plan includes a strategic objective to "reach more people, more often, in more ways." Also, it is important to note that the plan includes a strategic value to improve accessibility which is described as "listening to audiences we're trying to reach, using proactive practices to increase staff and volunteer diversity, building sustainable programs and strategies to serve underserved audiences, and have more floor staff."

Racial-ethnic composition of paid staff

The racial-ethnic composition of the staff that work at OMSI provides another perspective on the museum's internal culture. This perspective is described by a recent Equal Employment Opportunity report compiled by the human resources department (OMSI does not track the racial-ethnic background of non-paid staff).

Table 11 illustrates that the majority of OMSI's staff are reported as white, non-Hispanic individuals.

Table 11. Racial-ethnic composition of OMSI's 312 permanent, full-time and part-time staff as of March 15, 2002. 48.89% Female; 51.11% Male

Job Categories	White (not of Hispanic origin)	Black (not of Hispanic origin)	Hispanic	Asian or Pacific Islander	American Indian or Alaskan Native
Not categorized	12				
Officials and Managers	38			1	1
Professionals	115		2	2	
Technicians	14				1
Sales workers	53	1	1		
Office and clerical	29		1	1	
Craft Workers (skilled)	10				
Operatives (semi-skilled)	16		1	1	
Laborers (unskilled)	6			2	
Service Workers	2		2		
Total	295 95%	1 0.3%	7 2.2%	7 2.2%	2 0.6%

Staff support of *Latinas en Ciencia* and Spanish-speaking visitors

The support and skills that staff contribute to the museum's efforts to serve Latino audiences provides another perspective on the museum's internal culture. These aspects were assessed with two separate surveys.

The first survey was intended to learn about staff's awareness and involvement with *Latinas en Ciencia*. The survey was administered to all paid and non-paid staff. A sample of the survey is in Appendix B. Ninety-eight out of 306 paid staff responded (32%); 52 out of 225 volunteer staff responded (23%). Paid staff responses represented every department of the museum (each department had between 20 and 67% participating). All responses are listed in Table 12.

The first question asked in the survey was, "Have you heard of the OMSI program, *Latinas en Ciencia*?" Almost all of the staff people had heard of the program, but only about a third of the volunteers had heard of the program.

The second question asked was, "Has your work at OMSI supported the *Latinas en Ciencia* program?" Nineteen percent of the staff had been involved with the *Latinas* program at least once, but only 12% of the volunteers had been involved.

The third question was, "Did you know OMSI hosts *Latino Family Days* each month?" Sixty-four percent of the paid staff were aware of this event, but only 36% of the volunteers were aware of Latino Sundays.

Table 12. Staff survey about awareness and involvement with *Latinas en Ciencia*

	Paid Staff # (%)	Non-paid Staff # (%)
Have you heard of the OMSI program <i>Latinas en Ciencia</i> ?		
Yes	95 (97)	17 (33)
No	3 (3)	31 (60)
Not Sure	3 (6)	1 (2)
No Response		
Has your work at OMSI supported the <i>Latinas en Ciencia</i> program?		
Not that I am aware of	29 (30)	42 (80)
At least once	19 (19)	3 (6)
Occasionally	27 (28)	3 (6)
Often	22 (22)	
Not sure	1 (1)	
No response		4 (7)
Did you know OMSI hosts <i>Latino Family Days</i> each month?		
Yes	63 (64)	20 (36)
No	27 (28)	31 (56)
Not Sure	7 (7)	4 (7)
No Response	1 (1)	

These data suggest that the paid staff of OMSI are generally exposed to the *Latinas en Ciencia* out-reach effort and, in fact, a large majority have helped support this effort. The paid staff have been more exposed and involved than the non-paid staff. This is probably because many non-paid staff members spend fewer overall hours at the museum.

The second survey was intended to learn more about the extent of Spanish spoken between staff and visitors. A sample of the survey is in Appendix C. This survey was administered only to paid and unpaid staff that frequently work directly with general admission audiences. This included 45 paid staff members and 225 non-paid staff that work “on the floor” of the museum in retail, education, and visitor services. Forty-two out of 45 paid staff responded (93%); 58 out of 225 volunteer staff responded (26%) All responses to this survey are listed in Table 13.

The first question was, “What is your primary language?” The primary language of the majority of OMSI staff is English (98% of paid floor staff and 81% of unpaid staff, respectively). Fourteen percent of unpaid staff reported their primary language was Spanish.

The second question was, “Have you taken courses in Spanish (credit or non-credit)? If YES, how many years have you taken?” Sixty percent of the paid floor staff and 43 percent of the unpaid staff have taken some Spanish courses. Most of these people have taken one to two years of Spanish. The third question was, “Have you learned any Spanish from family, friends, or co-workers?” Thirty-eight percent of the paid floor staff and 24% of the unpaid staff have taken some Spanish courses.

The fourth question was, “At the present time, how comfortable are you speaking the Spanish you’ve learned?” Sixty-five percent of the paid floor staff and 52% of the non-paid staff said they feel too awkward to speak Spanish or could only speak a basic greeting. Twenty-four percent of the paid floor staff and 17% of the non-paid staff are willing to speak “survival Spanish.” Almost no staff expressed comfort with conversational Spanish.

The fifth question was, “To the best of your knowledge, have you ever encountered an OMSI visitor who speaks only Spanish?” A large majority of the paid floor staff (71%) and a large minority of the unpaid staff (38%) believed they had encountered a visitor who spoke only Spanish. Staff who interacted with a Spanish-speaking visitor relied on a variety of strategies to communicate information. Among paid floor staff, common strategies included speaking careful English and gesturing. Less common strategies included speaking Spanish, providing printed Spanish materials, or using an interpreter.

Table 13. Staff survey about Spanish spoken in the museum.

	Paid Staff #(%)	Non-paid Staff #(%)
What is your primary language?		
English	41 (98)	47 (81)
Spanish		8 (14)
Other	1 (2)	3 (5)
No Response		
Have you taken courses in Spanish (credit or non-credit)? If YES, how many years have you taken?		
Yes	25 (60)	25 (43)
No	17 (40)	33 (57)
# of years taken	Most 1–3 years	Most 1–2 years
No Response		
Have you learned any Spanish from family, friends, or co-workers?		
Yes	16 (38)	14 (24)
No	26 (62)	44 (76)
No Response		
At the present time, how comfortable are you speaking the Spanish you’ve learned?		
Feel too awkward to speak Spanish	15 (36)	18 (31)
Comfortable with basic greeting only	12 (29)	12 (21)
Willing to speak “survival” Spanish	10 (24)	10 (17)
Comfortable speaking Spanish in conversation	1 (2)	
No response	4 (10)	18 (31)
To the best of your knowledge, have you ever encountered an OMSI visitor who speaks only Spanish?		
Yes	30 (71)	22 (38)
No	12 (29)	36 (62)
No Response		
Please describe ways that you have communicated with a Spanish-speaking person.		
Careful English	14 (47)	2 (9)
Gestures	17 (57)	7 (32)
Spanish	7 (23)	12 (55)
Visitor guide/Map	4 (13)	1 (5)
Visitor interpreted	6 (20)	6 (27)
Staff interpreted	2 (7)	2 (9)
Yes, but no details	2 (7)	

The data from this survey indicate that both paid and unpaid floor staff bring some Spanish language skills to the museum, although their skills and comfort with Spanish are very limited. The likelihood of a paid floor staff person encountering a visitor who speaks only Spanish is quite high (at least 70% of the staff seem to have had such an encounter). Staff seem to communicate with Spanish-speaking visitors in a variety of ways. About one-quarter of the paid staff and one-half of the non-paid staff have communicated with Spanish-speaking visitors by speaking Spanish.

The physical environment

The physical environment at OMSI offers another perspective on the museum's internal culture. To assess the physical environment with respect to serving Spanish-speaking and English-speaking Latino families, volunteers were recruited from the Latino community to describe OMSI. The volunteers were called "raters" in this study because they were asked to assign verbal ratings to the physical environment of OMSI as they visited different areas within the museum. Five raters completed the process.

While all of the raters were bi-lingual Latinos, they brought different perspectives to their task. One holds a position as Vice Provost of Multi-cultural Affairs at a local university. He is from Venezuela, but he has lived in the United States for over 30 years. His career began as a Human Factors Engineer who was charged with creating universally accessible signs on Miami beaches. Another rater is an elementary school teacher in a metro-area school. She has been a patron of OMSI for many years as she brought her own children to the museum. She is highly supportive of *Latinas en Ciencia*. Two other raters were local high-school students. One of them volunteered at OMSI in the summer of 2001 as a Rising Star. The other student had visited OMSI before but had never volunteered. The fifth rater was a local social worker with a large Latino clientele. She described Latino parents from her clientele as primarily Spanish speaking with little formal education. Because of the lack of formal education, reading (even in Spanish) is not as comfortable for these parents. In addition, she suggested that these parent's knowledge frameworks may not be similar to academic knowledge frameworks (e.g., academics might describe fields in science as chemistry, physics, biology, but her clients might not use this type of hierarchy).

Three raters visited OMSI independently. The two high school students visited OMSI together. Raters were provided with a general admission ticket, an OMNIMAX movie ticket, \$5.00 cash for the café, and a \$20.00 gift certificate to buy something in the science store. They were then asked to explore the museum as though they were a typical visitor and enjoy themselves. The raters spent between 0.5 and 2.5 hours in the museum. They had the freedom to visit whatever areas of the museum they wanted. Areas included exhibit halls, labs, the lobby, the restrooms, the café, the store, and the OMNIMAX.

Raters were asked to describe their impression of things they encountered in the physical environment including: the building, signs, exhibits, and printed materials. Raters gave four types of ratings. Three of these ratings were recorded on Area Rating Sheets (Appendix D) and the fourth type of rating was recorded through Exit Interviews.

The Rating Instructions and Activity Rating Sheets were provided in English and in Spanish and the raters were free to use whichever they preferred. The first rating on the Area Rating Sheet was a detailed description of each area based on a set of standardized words. Raters were provided 28 positive and negative words or phrases and asked to circle any of those words that described the specific area they visited. The words included:

organized, cluttered, safe, unsafe, uninviting, welcoming, expected, surprising, relevant to me, irrelevant to me, informative, uninformative, comfortable, stressful, obvious, confusing, fun, boring, too long, too short, dull, overwhelming, clean, dirty, interesting, uninteresting, flexible, inflexible.

Raters could circle as many words as they wanted or circle none at all.

The second type of rating on the Area Rating Sheet was answers to open-ended questions about the specific area visited. The third rating on the Area Rating Sheet was a forced choice response that required the rater to describe an area as *easily accessible*, *accessible with effort*, or *not at all accessible*.

The fourth type of rating was answers to open-ended Exit Interview questions. The questions included:

- 1) What observations re-occurred throughout your visit?
- 2) What changes would you recommend that would have the greatest positive effect on OMSI's internal culture with respect to serving Latino visitors?
- 3) Would you recommend OMSI to a Spanish-speaking individual?
- 4) How would you describe OMSI's internal culture?
- 5) Other comments?

The data collected from these ratings is from the perspective of Latino raters that are bi-lingual (and probably bi-cultural) and have had exposure to OMSI prior to making the rating. Regardless, these raters provided sincere comments that begin to describe how some Latinos might perceive OMSI's internal culture as a result of interacting with the museum's physical environment.

The raters visited the following locations within the museum:

- 5 visited the Life Lab,
- 4 Tech Hall,
- 4 Life Hall,
- 3 ticket counter,
- 3 Tech Lab,
- 3 Discovery Space,
- 2 Café,
- 2 store,
- 2 Chemistry Lab,
- 1 Watershed Lab,
- 1 Turbine Exhibit Hall,
- 1 restroom (no comments provided),
- 1 Physics Lab,
- 1 Paleontology Lab,
- 1 OMNIMAX,
- 1 Earth Hall,
- 1 Busytown.

Basically, at least one rater commented on every area of the museum.

A look at the words the raters circled to describe these areas shows that more positive words were circled than negative words. Some of the positive words that were circled include:

- Interesting (frequency of 12),
- Welcoming (12),
- Organized (12),
- Fun (11),
- Informative (10),
- Comfortable (10),
- Clean (8),
- Relevant to me (8),
- Safe (7),
- Flexible (3),
- Surprising (2),
- Obvious (2).

Some of the negative words that were circled include:

Confusing (frequency of 4)
 Uninviting (3),
 Cluttered (2),
 Boring (3),
 Irrelevant to me (1),
 Unsafe (1),
 Too short (1).

Overall accessibility ratings for the areas fell into this distribution:

Easily accessible (frequency of 10),
 Accessible with effort (6),
 Inaccessible (2).

Table 14. The areas that received all positive words included:

The ticket counter (3 raters)	organized, welcoming, relevant to me, informative, and easily accessible
The store (2)	organized, safe, welcoming, surprising, relevant to me, informative, comfortable, fun, interesting, and easily accessible
The Turbine Hall (1)	organized, safe, welcoming, surprising, relevant to me, informative, fun, interesting, flexible, and easily accessible
The Earth Hall (1)	organized, safe, welcoming, relevant to me, informative, comfortable, fun, clean, interesting, flexible, and easily accessible
The Life Lab (5)	organized, safe, welcoming, informative, comfortable, obvious, fun, clean, interesting, and easily accessible
Discovery Space (3)	safe, welcoming, surprising, informative, comfortable, obvious, fun, easily accessible (<i>irrelevant to me</i> was circled, but in this case it seems to be a neutral comment)

Table 15. The areas that were described with both positive and negative words include:

The Café (2 raters)	POSITIVE: comfortable, clean NEGATIVE: uninviting, boring, dull, accessible with effort
OMNIMAX (1)	POSITIVE: organized, welcoming, fun, interesting, easily accessible NEGATIVE: unsafe
Paleontology Lab (1)	POSITIVE: relevant to me, interesting NEGATIVE: cluttered, uninviting, confusing, almost inaccessible
Watershed Lab (1)	POSITIVE: relevant to me, interesting NEGATIVE: cluttered, uninviting, confusing, almost inaccessible
Life Hall (4)	POSITIVE: organized, safe, welcoming, relevant to me, informative, comfortable, fun, clean, interesting, flexible NEGATIVE: confusing
Tech Hall (4)	POSITIVE: organized, safe, welcoming, surprising, informative, comfortable, obvious, fun, clean, interesting, easily accessible NEGATIVE: boring, too short, accessible with effort
Tech Lab (3)	POSITIVE: organized, welcoming, relevant to me, informative, comfortable, fun, clean, interesting, easily accessible NEGATIVE: accessible with effort

Raters provided general comments and suggestions on the Area Rating Sheets and in the exit interviews. All comments are provided in Appendix E. The majority of the comments fell into one of four general categories: wayfinding, Spanish translation, interactives, and multicultural representation.

The issue of wayfinding was mentioned many times. Several comments indicated the need for larger type and visual icons that were easier to interpret. Requirements also need to be translated (e.g., Discovery Space visitors need an adult accompanying them).

Signs should be larger, better mapping

Signs that require some kind of action or requirement need to be translated

Signs need to face entrance

Second floor had better, more explicit signage

Wayfinding—make a greater effort to distribute translated maps

Designate room colors—will help with wayfinding/orientation

*NB. Since these ratings were made, new wayfinding signs have been placed in the museum. At this time there is no data available on the new signs.

The issue of Spanish translations was mentioned many times. Many comments addressed the need for more information and instruction in Spanish. Some of these comments echo those on wayfinding, but many are specific to exhibits or halls.

Place something in the lobby in Spanish that welcomes visitors and guides visitors to get them in.

Store—needs more Spanish language stock.

Pictures contribute to success. Info and instructions should be in Spanish too.

Fix signs to say something more concrete. Like Discovery Space icon (doesn't mean anything)...a place to try things with hand. Life Hall...a place to learn more about the body.

If everything can't be translated, at least provide a sign about what everything is about (main message).

Don't know where to start, lost without reading English.

It would be good to have some things translated...like computer lab and Tech Hall because they're so complex.

Have a common way of displaying Spanish signs around the museum with some "Spanish-speaking" or "Latino cultural" symbol.

The issue of the interactive or hands-on approach to exhibits was mentioned several times. The exhibits drew positive comments for their power to attract and interest visitors. In addition, they allowed for flexibility in a visit;

people can do whatever they want whenever they want. Even when lack of Spanish was an issue, there was still interest in the exhibits.

Chem lab—people who don't speak English spend more time in these exhibits because they are very fun and educational.

Hands-on is great!

Customers flow freely and interact.

I loved the area where they had science games on computers. It's perfect to help the children participate. 2nd floor very interactive...you can do things at your own pace; good for all ages.

Busytown is great for helping parents get their kids to think scientifically.

I like the level where there are colorful activities, especially for young kids.

Good experiments, use of creativity, very stimulating.

The issue of multi-cultural representation was mentioned several times. Two of the respondents had comments during their exit interview about the multi-cultural representation in the museum. They found some diversity among the visitors in the museum, but they felt the physical environment was very North American-centric.

No evidence that OMSI is reaching out to Hispanics, but there were a lot of Latinos in school groups.

I saw as many people from non-dominant cultures as from dominant culture (e.g., Asian, Hindi, Hispanic).

Very North American in that aesthetics play at best a secondary role.

Don't appear so ethno-centric...when and where does the knowledge come from? [Show the diverse traditions on which this knowledge was built.]

Would like to see more background on geography and history to bring a sense of international and multi-ethnic contributions.

Saw very few books in Spanish. Include books on lifestyle within Latin America, US and indigenous communities so parents can teach kids "That is where I come from."

Another question asked of raters was, Would you recommend OMSI to a Spanish-speaking individual? All five of the raters responded to this question with a “yes” or a qualified “yes.”

Two of the raters said they would recommend the museum, but they would tell the person to bring someone that spoke English, too.

One of the raters said they would recommend the museum, but that is because there is no similar alternative in town. They would get 30–40% of what is presented. It is a place to see interactive exhibits and spend time walking around.

One of the raters said they would recommend the museum, but because it is a place for parents to expose themselves to this type of setting and give the children an opportunity to explore.

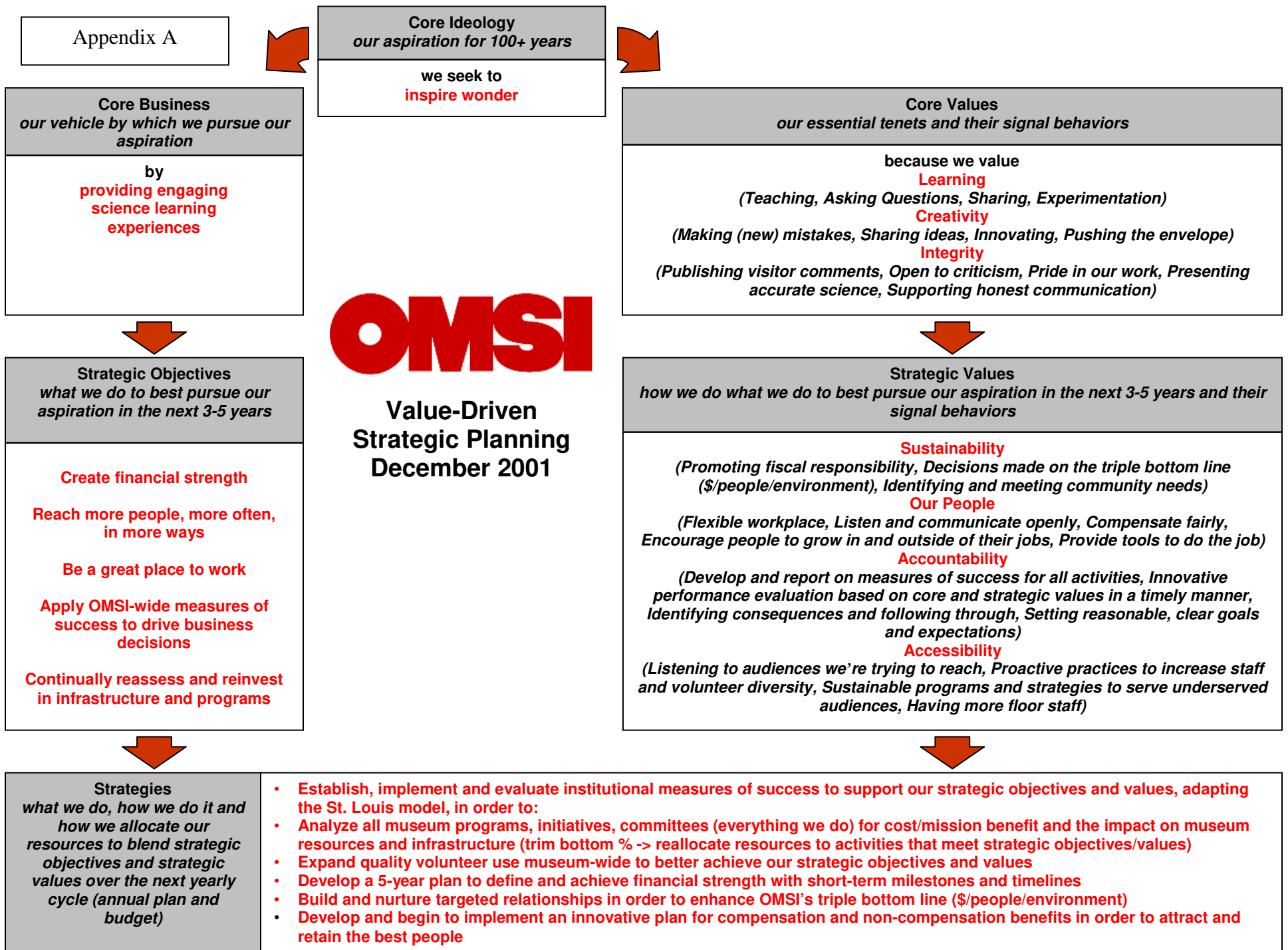
The final question asked of each rater was, What words would you use to describe OMSI’s internal culture? Raters used these words: fun, educational, interesting, do-it-yourself discover culture, science culture, relaxed, North American, and welcoming.

Summary of the assessment of OMSI’s internal culture

OMSI’s personality is “The Host” with a core ideology to “inspire wonder.” OMSI is primarily staffed by white, non-Hispanics.

The likelihood is high that a paid staff person who works directly with visitors will encounter a visitor that only speaks Spanish (~70%). While most paid and non-paid staff have extremely limited Spanish skills, they use a variety of strategies to communicate with Spanish-speaking visitors. Strategies include careful English, gesturing, and simple Spanish.

Raters from the Latino community suggested OMSI provide clearer wayfinding signage (prior to installation of the current signs), Spanish translations, and a broader multi-ethnic representation in exhibits. Still, the raters described OMSI’s internal culture with primarily positive words including some words that seem particularly apropos for a host trying to inspire wonder. These words include: fun, welcoming, relaxing, and do-it-yourself discover culture.



Appendix B

Your participation in this survey is voluntary, anonymous, and much appreciated.

The education department is preparing a report for a grant provider. Please help us inform the grant provider by giving us honest feedback on the following questions. If you have any questions about this form, contact Nikki Steuch, 4667 or Marcie Benne, 4612.

1) Have you heard of the OMSI program *Latinas en Ciencias*? Yes No Not sure

2) Has your work at OMSI supported the *Latinas en Ciencias* program?

Not that I am aware of	At least once	Occasionally	Often
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3) Did you know OMSI hosts *Latino Family Days* each month? Yes No Not Sure

4) What is the name of your department? _____

Thank you for your time and input!

Please return this form to the red, locked comment box by Hester Yorgey in facilities,
Sarah McCoy at the main switchboard, or in the Pepco lunchroom by March 15, 2002.

Appendix C

Your participation in this survey is voluntary, anonymous, and much appreciated.

The education department is preparing a report for a grant provider. We would like to report basic information on the extent staff use Spanish in the museum. Please answer the following questions honestly so that our report is realistic. If you have any questions about this form, contact Nikki Steuch, 4667 or Marcie Benne, 4612.

1. What is your primary language?
If your primary language is Spanish, please skip to item # 6.
2. Have you taken courses in Spanish (credit or non-credit)? YES NO
If YES, please describe how long you studied.
3. Have you learned any Spanish from family, friends, or co-workers? YES NO
If YES, please describe how you learned Spanish.
4. Have you ever traveled to or lived in a Spanish-speaking country?
If YES, please describe the extent to which you used Spanish during that time.
5. At the present time, how comfortable are you speaking the Spanish that you've learned?
(Circle one and feel free to add comments).

1	2	3	4
Feel too awkward to speak Spanish	Comfortable with basic greeting only	Willing to speak "survival" Spanish	Comfortable speaking Spanish in conversation

6. To the best of your knowledge, have you ever encountered an OMSI visitor who speaks only Spanish?
YES NO
If YES, please describe ways that you have communicated with a Spanish-speaking visitor (e.g. Spanish, gestures, careful English, demonstration).
- 7) What is the name of your department? _____

Thank you for your time and input!

Please return this form to the red, locked comment box by Hester Yorgey in facilities, Sarah McCoy at the main switchboard, or in the Pepco lunchroom by March 15, 2002.

Appendix D

Thank you for volunteering
to assess the physical environment at OMSI with respect to serving Latino visitors.

Introduction

We want to know how Spanish speaking and English speaking Latino families might respond to the exhibits and activities at OMSI. Today we want feedback on the **physical environment** (structures, signs, facilities, printed materials). We will look at staff and volunteer assistance another day.

- 1) Does the physical environment at OMSI allow Spanish speaking visitors to complete activities?
- 2) Does the physical environment at OMSI provide activity interfaces that are relevant to Latino visitors?

Please spend 2 – 3 hours at OMSI today. Instructions are below; forms are provided behind each tab.

Instructions

Choose 10 activities below. Do each activity then tell us about your experience on a feedback form.
Meet _____ in the lobby at _____ to talk about your experience before you leave.

Services

- _____ Ticket counter.
- _____ Café.
- _____ OMNIMAX movie.
- _____ Restroom.
- _____ Store.

First Floor Exhibit Halls and Labs

- _____ Brain Exhibit Hall
- _____ Turbine Hall
 - _____ *Discovery Space*
 - _____ *Chemistry Lab*
 - _____ *Physics Lab*

Second Floor Exhibit Halls and Labs

- _____ Earth Hall
 - _____ *Paleontology Lab*
 - _____ *Watershed Lab*
- _____ Life Hall
 - _____ *Life Lab*
- _____ Tech Hall
 - _____ *Tech Lab*

Please enjoy yourself! We look forward to learning more about the museum's strengths and weaknesses.

Activity: _____

Please circle the words below that best describe your experience.

organized	cluttered	informative	uninformative	dull	overwhelming
safe	unsafe	comfortable	stressful	clean	dirty
uninviting	welcoming	obvious	confusing	interesting	uninteresting
expected	surprising	fun	boring	flexible	inflexible
relevant to me	irrelevant to me	too long	too short		

What do you think contributed to the success of this environment?

What do you think needs improvement? _____

Comments: _____

General Rating on accessibility (how easy to use and understand).
Please circle one.

Easily Accessible

Accessible with effort

Inaccessible

Gracias, por participar como voluntario en el proceso de evaluación al ambiente de **OMSI** con respecto a los visitantes Latinos.

INTRODUCCIÓN

Queremos saber como las familias Latinas que hablan español, que hablan inglés o que tienen un nivel básico de inglés responden a las actividades en OMSI.

Queremos un feedback honesto acerca del ambiente (estructura, señales, recursos, material impreso, temas y tópicos relevantes). Evaluaremos a los empleados y voluntarios en otra oportunidad.

Te pedimos pasar de 2 a 3 horas en OMSI el día de hoy. Las instrucciones te las presentamos a continuación y son las mismas para cada evaluación. Mientras evalúas el museo, por favor evita hablar con otras personas que estén participando como evaluadores en esta actividad, y siente la libertad de expresar sinceramente tus observaciones: esa es la idea.

INSTRUCCIONES

- Escoge 10 actividades de la lista que aparece a continuación.
- Realiza cada una de las actividades que escogiste y escribe tus observaciones en el formato correspondiente.
- Al finalizar la visita y las observaciones reúnete con _____
En el Lobby de OMSI, a las _____, para hablar de tu experiencia antes de que te vayas.

Servicios

- ___ Mostrador principal (Compra los tickets, averigua acerca de las membresías)
- ___ Café (Compra algo de tomar o de beber)
- ___ OMNIMAX (Ve a una película)
- ___ Baños (Visítalo)
- ___ Tienda de Ciencia (Compra algo en la tienda)

Primer piso Pasillos de exhibiciones y Laboratorios

- ___ Brain Exhibit Hall (Prueba tres actividades)
- ___ Turbine Hall (prueba tres actividades)
 - ___ Discovery Space (Prueba una actividad)
 - ___ Chemistry Lab (Prueba una actividad)
 - ___ Physics Lab (Prueba una actividad)

Segundo piso Pasillos de exhibiciones y Laboratorios

- ___ Earth Hall (Prueba tres actividades)
 - ___ Paleontology Lab (Prueba una actividad)
 - ___ Watershed Lab (Prueba una actividad)
- ___ Life Hall (Prueba tres actividades)
 - ___ Life Lab (Prueba una actividad)
- ___ Tech Hall (Prueba tres actividades)
 - ___ Tech Lab (Prueba una actividad)

Disfruta tu experiencia!!! Estamos muy entusiasmados de enterarnos de la fortalezas y debilidades del museo a través de ti.

ACTIVIDAD _____

Encierra en un círculo las palabras que mejor describan tu experiencia. No existe límite en las palabras que escojas.

organizada	desordenada	informativa	no informativa	abrumadora	monotona
segura	insegura	cómoda	estresante	limpia	sucia
poco acogedora	acogedora	clara	confusa	agobiante	simple
predecible	sorpresiva	divertida	aburrida	flexible	rígida
relevante	irrelevante	muy larga	muy corta		

¿Qué piensas ha contribuido al éxito de esta actividad? _____

¿Qué crees necesita mejorarse? _____

Comentarios _____

Evaluación de accesibilidad (Cuan sencilla y fácil de entender es la actividad)

Por favor, encierra en un círculo tu opción de preferencia.

Fácilmente accesible

Accesible con esfuerzo

Inaccesible

Appendix E

Table 16. Rater comments from the Area Rating Sheet.

	Comments:
Ticket counter	All brochures handy. Quick service, well lit. Good flow design. Signs need to face entrance, should be able to inquire about membership. Signs should be larger, better mapping. Color coding, more conspicuous.
Café	Out of the way. Could have children's and museum's motives on walls, tables, chairs. Larger selection. Better times.
OMNIMAX	organized, good length of time, different. Better lighting and indicator of stairs, steps, and exit route. Could be unsafe.
Store	Accessible without admission, pleasant, good variety of items and demos. Customers flow freely and interact. Some items too high, lighting is poor in book section. Nice to have music, needs more spanish material.
Turbine Hall	Sterile. Good experiments, use of creativity, very stimulating. Turbine generator is too big for space, doesn't attract. Busy town- great bilingual but parents need concrete idea of how the help children think.
Discovery Space	great for smallest in the family, needs more sitting area for parents. Needs spanish reading material, should sign in at door, instructions, but welcoming! 1. All of the activities are appropriate. 2. Nothing in my opinion 3. I liked all of the activities. But my favorites were the brainteasers.
Chemistry Lab	Don't know where to start, lost without reading English. 1. It was short. It didn't take up much time. 2. We need instructions in Spanish. Also, numbered drawings, in case people don't have an interpreter. 3. In my opinion, the people who don't speak English spend more time in these exhibits because they are very fun and educational.
Physics Lab	
Earth Hall	spacious, interactive, self-directed, good for all ages. Needs multi-lingual instructions, brochures. Second floor had better, more explicit, signage
Paleontology Lab	unsure of what to do or if one should be there.
Watershed Lab	
Life Hall	Pictures contributed to success, info and instructions should be in Spanish too. Exciting material, good signs. Needs maps to indicate origins of plants or animals. Spanish signs need non-verbal consistency. Skin color exhibit?
Life Lab	good that most things are bilingual. Well lit, open, colorful, alive, personnel were present. 1. The animals and the reptiles are sufficient. They aren't great, but they're not bad either. I like the level where there are colorful activities, especially for young kids. 2. Nothing 3. I loved the area where they had science games on computers. It's perfect to help the children participate.
Tech Hall	make point clear, Spanish needed.
Tech Lab	staff helpful, interesting, good lighting, layout was open.

Table 17. Rater comments from the Exit Interviews.

1. What observations re-occurred throughout your visit?	Rater 1	<p>-Entrance is ok - Thinks it would be pretty easy to get in.</p> <p>-Staff gave her a person to ask for, Bianca.</p> <p>-Hands-on is great!</p> <p>-Easily accessed.</p> <p>-Enjoy it- but, sometimes people need a welcome in Spanish.</p>
	Raters 2, 3	<p>-If we didn't know English, it would be hard to know what to do.</p> <p>-Not enough explanation throughout OMSI.</p> <p>-Wayfinding is difficult for new visitors.</p>
	Rater 4	<p>-2nd floor very open and interactive...you can do things at your own pace; good for all ages; motivator for family activity; feels secure/safe/very few hazards.</p> <p>-Exhibits are attracting/interesting.</p> <p>-2nd floor seems to have had more time/better signs; red signs are conspicuous.</p> <p>-no evidence that OMSI is reaching out to Hispanics, but there were a lot of Latinos in school groups.</p> <p>-For many cultures first floor is not the ground floor.</p> <p>-White color on walls is monotonous and not attractive.</p>
	Rater 5	<ul style="list-style-type: none"> - The signs that require some kind of action or requirement need to be translated (e.g. discovery space visitors need an adult) and signs for finding things (wayfinding). - Fix signs like Discovery Space (doesn't mean anything). Say something more concrete...a place to try things with hand. Life Hall...a place to learn more about the body. Translate these, too. - Only Life Hall was translatedthat was nice. - Many Latinos she works with have little formal education. Therefore, aren't used to reading or topics (e.g. chemistry).

2. What changes would you recommend that would have the greatest positive effect on OMSI's internal culture with respect to serving Latino visitors?	Rater 1	-Something in the lobby in Spanish that welcomes and guides just to get them in. -"We speak Spanish." OR "Do you need any help?"
	Raters 2 & 3	-It would be good to have some things translated...like computer lab and Tech Hall because they're so complex. -Have more Spanish-speaking staff, more often. -Wayfinding – make a greater effort to distribute translated maps.
	Rater 4	-Wayfinding: call first floor "ground" or "main," "red;" call second floor "first" or "blue" (something foreign to every culture). -Designate room colors – pastels for example. For wayfinding/orientation, interest. -Move cafeteria so that you don't have to pay to access it; use it as a source of revenue (paint the cafeteria a fun color and change furniture so that it is not so hard and dull).
	Rater 5	<ul style="list-style-type: none"> - Have a common way of displaying Spanish signs around the museum (e.g. same color, frame) with some "Spanish-speaking" symbol or "Latino cultural" symbol. - If everything can't be translated, at least provide a sign about what everything is about (main idea). - In science, we need to recognize where things come from... "old" knowledge is what we've built on (e.g. traditional). - Say chemistry lab for exploring ____; Life lab for exploring _____. Make it inviting. - Translate Brainteaser instructions because these are easy to access. - Saw very few books in Spanish (e.g. Discovery Space, Life Lab, Store). Easy to buy. Also include books are lifestyle within Latin American, US, and Indigenous communities so parents can teach kids, "that is where I came from."

3. Would you recommend OMSI to a Spanish-speaking individual?	Rater 1	-Yes! -You don't need to speak English.
	Rater 2 & 3	Francesco- – I would because most info. in Life Science Lab is already translated or you can get the idea and figure it out. Anna – - Yes, but I would tell them to bring someone that spoke English, too.
	Rater 4	-Yes, because there is not alternative; no similar experience in Portland. This is regardless of friendly/not friendly, fun/not fun. -They would get 30-40% of what is presented...it's a place to see interactive exhibits and spend time walking around.
	Rater 5	- Yes, go. It's a place to play and a great place for kids to explore. I have invited a lot of families to Latino Sunday. It's great for parents to expose themselves to this.
4. What words would you use to describe OMSI's internal culture?	Rater 1	Educational, Informative, Something to give to kids...more than a movie.
	Raters 2 & 3	Fun! Interesting!
	Rater 4	-Do it yourself, discover culture, hands-on. -More relaxed when people have the freedom to roam around (some people from other cultures may find this unique and advantageous). This promotes self-discovery. Perhaps younger generation doesn't appreciate it, but older generation will. -Very North American in that aesthetics play at best a secondary role. -Embellish with murals to make it more interesting and warmer (e.g. Diego Rivera that has to do with industrial revolution or space program). This art can reflect faces and discoveries of different cultures.
	Rater 5	- Visual culture, science culture, colorful and welcoming, confusing sometimes (too many choices), exciting, a place to explore. - For Spanish-speaking visitors it is more a place to explore than a place to learn.

5. Other comments	Rater 1	None.
	Raters 2 & 3	None.
	Rater 4	<ul style="list-style-type: none"> - 6 Latino girls were using green screen. - Have Spanish speaking options on main switchboard voice mail. - No one was looking at generator, do a time sample, Move the generator and put the motion simulator in there. - Put brochures with different languages by exhibits – each one needs instructions (not an overview...just instructions). - I saw as many people from non-dominant cultures as from dominant culture (e.g. Asian, Hindi, Hispanic) - It's good that staff members are conspicuous and uniform, but they don't hover too closely.
	Rater 5	<ul style="list-style-type: none"> - To be accessible to Latinos need to think of those who have never been exposed to topics in school. - The MAX light-rail exhibit doesn't mention that Tri-Met allowed Asian community members to have a Shaman clear the spirits when a hole was placed in the hill. "If we highlight our cultures, the kids would be happier because they will feel proud of who their parents are." - Busytown is <u>great</u> for helping parents get their kids to think scientifically. - Would like to see more geography and history to bring a sense of International and other ethnic groups. - Ask a Latino Scientist to rate the museum. - (e.g. in the Life Hall highlight on the map where things come from like the animals in the Life Hall). - Don't appear so ethno-centric...when and where does the knowledge come from? - How about an exhibit about skin colors in the Life Hall. Why are they different? - Age Machine doesn't recognize race...black people and Asians do not wrinkle the same as white people. - So, overall, I'd like to see how different races are involved and affected. - I would like to see more of an International feel in the museum. - Latino Sunday needs to stay as well as Latinas en Ciencias.