WonderLab Needs Analysis

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Table of Contents

Executive Summary

3.1
The primary aim of the Needs Analysis study was to determine the best way to meet the needs of those groups currently using WonderLab during school hours. In particular we focused on how to optimize the experiences of pre-K children and school-age children who attend in groups. What emerged from data analysis was a need to embrace the duality of the WonderLab: the museum experience should be both experiential and educational; the staff and volunteers require both fluidity and structure; and the facility can be both a catalyst and a barrier for change. In its current state, the WonderLab tips toward an experiential, fluid approach that is confined to the facility; however there is a clear need for a structured educational approach that reaches beyond the building.

3.2
The Needs Analysis Team used a collaborative approach to collect and analyze data. Discussions with the client throughout the study were a critical element in our analysis. In addition, the team conducted informal and semi-structured interviews with key personnel, analyzed existing documents and demographic data to identify trends, and conducted environmental observations.

3.3
Analysis of the data collected during the study generated several recommendations. The immediate goal is to formulate an explicit educational agenda that addresses the needs of those children who visit, or might visit, the WonderLab during school hours. However, these recommendations have the potential to reach far beyond school-hour use, and provide a platform for WonderLab to move to the next level of educational planning.

I. Develop a clear and comprehensive (pre-K to high school) educational agenda that maintains the experiential mission of the WonderLab while meeting the educational requirements of the constituents.
II. Provide developmentally appropriate educational resources that support that educational agenda on the Web page, in the facility, and through web-based and paper-based materials.
III. Expand current communication with school groups and pre-K programs to construct a network that raises awareness of educational agenda/resources and builds both programs.
IV. Integrate aspects of the educational agenda into volunteer training, including early childhood training, small group activities, awareness of educational resources and the agenda.
V. Investigate alternate ways to reach school groups: outside funding for transportation; public transportation; and outreach programs for convocations.
VI. Modify the facility as needed to support all groups included in the educational agenda (pre-K to high school).
VII. Work towards hiring a part or full-time pre-K advocate.

Acknowledgements

4.1
The team members would like to thank the following WonderLab personnel for sharing their time and their expertise in this collaborative process:

4.2
Karen Jepson-Innes, Associate Executive Director
Rob McCrea, Gallery Operations Manager
Karen Stucky, Education Director
Jeanne Gunning, Volunteer Director
Don Marvel, Exhibits Director
Celeste Wolfinger, Scheduling Coordinator
Amy Bluin, Pre-school Explorers Coordinator

4.3
In addition, we would like to thank Dr. Thomas Schwen and Dr. Ivor Davies, whose wisdom and insight contributed to this project

Introduction

5.1
Karen Jepson-Innes, Associate Executive Director of WonderLab, contracted the Needs Analysis Team to design and conduct a study on one of two areas of concern. She was interested in increasing school group use of the facility during school hours, and she hoped to expand the pre-K offerings. During the initial interview with the client, the team was able to conflate these two foci into one overall aim: to examine the expectations and needs of groups and general visitors to WonderLab during school hours and assess how effectively WonderLab is meeting those expectations (see Appendix A; Authorization Letter).

5.2
The team primarily used informal and semi-structured interviews to investigate three factors that might contribute to the optimal use of the WonderLab facility during school hours: factors relating to school group use; factors relating to preschool use; and logistical factors (e.g., volunteers, use of space, scheduling). In addition, the team used document analysis, environmental observation, visitor intercepts, interviews and email surveys to examine how different populations used WonderLab during school hours. What emerged was an overall need for an explicit educational agenda that related to all three aspects of the study. Recommendations on how to address this need are presented in the following report.

Aim/ Scope

5.3
The primary aim of this study is to identify the needs of groups and individuals visiting the WonderLab facility during school hours and identify ways to meet those needs. In addition, this study will provide assistance in understanding which needs have a greater priority and how addressing said needs will impact the WonderLab. A secondary aim of this study is to assist the WonderLab staff in prioritizing some of the goals of the strategic plan (see Appendix B: Strategic Plan and Needs Analysis Recommendations).

Background

6.1
What distinguishes WonderLab from similar organizations is its strong tie to the community. It was born out of the vision of a mother, Debra Kent, who wanted a local hands-on science experience for her children. In 1994, she gathered a small group of like-minded individuals to talk about creating a hands-on science museum in Bloomington. The following year WonderLab began operation as a traveling outreach program run by dedicated volunteers.

6.2
Four years later, WonderLab opened a small, interim museum on the north side of the Bloomington courthouse square. At the same time, fundraising began to build a permanent museum on the present site, which the city of Bloomington had donated the previous year for that purpose. The interim museum had a small area devoted to preschool age children and their specific educational needs. An early grant was for a dramatic play area in the permanent museum, which turned out to be "Flat Rock Stage" in Discovery Garden.

6.3
The current museum opened to the public on March 29, 2003. It remains a grassroots organization supported by hundreds of volunteers. In 2005, over 800 volunteers gave a total of 13, 919 hours to the museum. The staff is made up of individuals who are passionately committed to the WonderLab, many of whom were involved in the early stages of the project. Although most staff members are experts in science education they were relatively untrained in museum studies in the beginning of WonderLab. As a result, they often surmounted obstacles that were deemed impassable by museum experts. During this study, a common lament during interviews with staff was that, “we didn’t know any better, so we just did it.”

6.4
Currently, WonderLab is in its third year at the new location. Each year, museum attendance has increased: in 2004 there were 67, 742 visitors to the site. In addition, school group use has increased each year. In 2005, there has also been a concerted effort to address strategic planning issues. Focus groups were held with different stakeholder groups to develop a strategic plan. What emerged from these focus groups was a list of basic values and core strategies that outlined a general plan for growth. Although this was an excellent first step, more specific direction is needed to implement the plan.

PEST Analysis

7.1
The PEST analysis focuses on the political, economic, social, and technological forces beyond Bloomington that might influence the use of the WonderLab facility during school hours. The items in each column have been rated for the level of positive (+) and negative (-) impact on the WonderLab. For example, the current political and economic climate may have a negative impact on school field trips even though there is continued political support of early exposure to science nationally and a new standardized science test at the state level. Although there is a growing national trend in museum-affiliated preschool programs, and an increased need for early enrichment activities by the Baby Boom echo generation, the economic realities that demand two incomes to support a family might limit the attendance of preschoolers during the school day.

POLITICAL	ECONOMIC	SOCIAL	TECHNOLOGICAL
++Museums seen as partners in education ++Early exposure to STEM still valued +Continued focus on more girls in Science +Increased focus on Science because of the IDT debate -- Focus on observable outcomes in NCLB suggests a move away from experiential learning +Industry push to get more scientists from business world into public schools +ISTEP Science testing began SY 2005-2006	- Decreased national funding for informal education (e.g., NSF cuts). --- Increased school field trip constraints because of liability, gas prices, funding cuts and educational accountability +Children's museums, science and technology museums growing trend in last decade, especially in non-urban areas +Museums working with schools districts to provide science professional development nationally -- Economic reality often requires both parents to work and restricts hours of family activities.	++Focus on early enrichment activities for children in Baby Boom echo generation +Expectation that children will be able to engage and interact with exhibits in museums +Increased home schooling - Health concerns about public spaces +Positive trend in intergenerational socialization	+Emerging technologies for informal education settings - Expectation of multi-media entertainment–like experience by children +- Open design trends in museums + Availability of acoustic control systems +- Increased technology use both in and out of school by children + Wireless technology being integrated into the museum experience in some places

+ And – are on a scale of 1-3 with one being low and three being high; sometimes there can be both positive and negative aspects

Key:
IDT = Intelligent Design Theory, NCLB = No Child Left Behind, SY = School Year
NSF = National Science Foundation, STEM = Science Technology Engineering and Math

Frame Factors

8.1

Frame Factors are circumstances that limit our potential; often they are tacit rather than explicit. Specifically, for this study:

- The Team had eight weeks to complete the project, there was no budget, and there were only three people in the group to filter through all of the data.
- The time frame overlapped with a critical fund-raising event for the WonderLab and most data collection was delayed until after the event.
- A concerted effort was made by the team to avoid redundancy and not overtax the already busy WonderLab staff.
- The contact information for school groups was school phone numbers, thus making it difficult to reliably contact teachers for interviews.
- The time frame was during the "low season" for group use so that there were fewer observation opportunities.
- Differing backgrounds of the researchers in regards to knowledge of WonderLab.

Project Methodology

9.1
The Needs Analysis Team used a collaborative approach to collect and analyze data. Discussions with the client throughout the study were a critical element in our analysis. In addition, the team conducted informal and semi-structured interviews with key personnel, analyzed existing documents and demographic data to identify trends, and conducted environmental observations.

9.2
Document Analysis
The team analyzed documents that related to the use of WonderLab during school hours: the WonderLab website, paper-based educational resources, group promotional and logistical materials, and the draft strategic plan. In addition the team analyzed and compared school group scheduling data for School Year (SY henceforth) 2004-2005 and SY 2003-2004, and membership zip code data for SY2004-2005. Following the quantitative analysis of school group scheduling data, the team contacted several teachers who had visited the WonderLab on high load days, and they spoke with administrators and transportation personnel at the local district office to clarify current field trip policies.

9.3
Semi-structured Interviews
In order to foster a greater understanding of the internal workings of the WonderLab the team conducted one-hour semi-structured interviews with key personnel: Karen Jepson-Innes (Co-Executive Director), Rob McRea (Floor Manager), Celeste Wolfinger (Scheduling), Karen Stucky (Director of Education), and Jeanne Gunning (Director of Volunteers). Most key personnel were also interviewed via e-mail. Don Marvel (Exhibits Director) was interviewed exclusively through e-mail.

9.4
Environmental Observations
Observations took place on several occasions that fit within the focus of the study (school field trips, pre-K activities, professional development). Team members worked in pairs to unobtrusively observe as members of the crowd. When appropriate, a first and second floor plan was used to record how visitors interacted with the exhibits (in particular the amount of time spent at each exhibit and the flow between exhibits). Observers also documented which gender seemed to be using which exhibits, the ways in which volunteers interacted with groups, and how non-group members, in particular pre-K children, reacted to the school groups. Observations of special programs used a narrative approach and included structured and semi-structured visitor intercepts.

9.5
Visitor Intercepts
Whenever possible, team members talked with visitors during observations. Sometimes these intercepts were very informal and, in some cases, were initiated by the visitor. At other times the intercept was structured and provided a way to clarify a need or falsify a hypothesis. In these instances a form was used to gather specific data with a large group of people.

Data Analysis

10.1
Analysis of the data collected during the study revealed several themes that cut across the three areas of the study: school group use, pre-K use, and organizational factors contributing to that use. At first these themes appeared dichotomous, but follow up interviews revealed a commitment to both ends of the spectrum by key personnel and a willingness to move along the continuum as needed. For a more detailed description of findings, please see Appendix C (pgs. 35-39)

10.2
Educational and Experiential forces

10.2.1. Teachers want both an educational and an experiential focus for their WonderLab field trips.
10.2.2. School Corporations require a clear educational focus for field trips.
10.2.3. Existing educational resources for group visits are underused.
10.2.4. The experiential focus of the mission statement of the WonderLab does not fully reflect the values of the organization leaders.
10.2.5. Volunteer training has shifted from an educational focus to an experiential focus.
10.2.6. Communication with school groups is primarily logistical.

10.3
Fluidity and Structure

10.3.1. Educators value a "guided exploration" approach to field trips.
10.3.2. Although there is perceived negative dynamic on high load days, teachers who visited on these days are generally satisfied with the experience.
10.3.3. A core of teaching volunteers should be developed and the role of volunteers during group visits clarified; however the fluidity of volunteer schedules should remain an option.

10. 4
Stasis and Change

10.4.1. Although school group use continues to build beyond the Bloomington area, restrictions on field trips are limiting local use.
10.4.2. Outside funding and promotional programs have a positive impact on school group use of the WonderLab.
10.4.3. Special events and exhibits are incentives for school groups to visit.
10.4.4. Teachers view WonderLab outreach programs as an alternative to field trips.
10.4.5. Transportation is the major obstacle to field trip use.
10.4.6. Although the larger facility was intended for older children, the predominant non-group use during school hours is by pre-K children.
10.4.7. The WonderLab facility may need to be adapted for large group use.

Strength, Weakness, Opportunity and Threat (SWOT) Analysis

11.1
The SWOT analysis examines the internal strengths and weaknesses (S & W) and the external opportunities and threats (O & T) that shape the WonderLab environment. Using data analysis findings, we generated a list of attributes and checked the list with the client. By superimposing the themes that emerged from data analysis over the different quadrants of SWOT, a pattern emerges. One can see clearly how the educational opportunities can transform the experiential strengths of the WonderLab; how the threats may force a change and alleviate the stasis contributing to WonderLab weaknesses; and how fluidity can be both a strength and a weakness of the WonderLab.

Figure 1: SWOT Analysis

Educational----------->Experiential

Fluidity ↑ Structure

OPPORTUNITIES +

1. Untapped preschool population
2. Community partnerships
3. Acoustic technology
4. Web-based resources for teachers
5. Über volunteer
6. National Touring Exhibits
7. Alternative transportation
8. Educator feedback

STRENGTHS +

1. Open use all day for preschool
2. Open and flexible building design
3. Hands-on/experiential focus
4. Strong volunteer base
5. Repeat use by school groups
6. Professional Development for teachers
7. Passionate and articulate staff; strong personnel in scheduling
8. Unique environment (one of kind in area)

Structure ↓ Fluidity

WEAKNESSES –

1. No full-time, preschool advocate
2. Negative group dynamic during large group visits
3. Lack of personnel for materials development and maintenance
4. Lack of developmentally appropriate educational materials
5. Lack of consistent volunteers
6. No explicit educational agenda
7. Field trip communication only logistical

Stasis<----------Change

THREATS -

1. Financial drain: No governmental funding high fixed costs, mortgage
2. Field trips being restricted by some districts because of fuel costs
3. National and local IDT debate
4. NCLB pressure on teacher time and content
5. Indiana University schedule
6. No formal network of educators
7. Aging grass roots organization

Table 1: Interaction between Strengths, Weaknesses, Opportunities and Threats (SWOTI)

	S1. Open all day	S2. Open design	S3. Hands on	S4. Volunteers	S5. School Group use	S6. PD for teachers	S7. Staff	S8. Unique	W1. No preschool staff	W2. Large group	W3. Personnel	W4. Educational material	W5. Fluid volunteers	W6. Educational agenda	W7. Communication	Total
O1. Preschool	+++	++	+++	+	--	+	++	+	---	---		--	-	--	--	-2
O2. Partnership			+++	+		++	+			+	+	++	--	--	--	5
O3. Acoustic		+			+					++						4
O4. Web-based resources					++	++	+	+	--	+	---	--		-	++	1
O5. Volunteer	+	+	+	++	+++				+	+		+	+	---	--	7
O6. Touring exhibits	++	+++	++		+++					++		+			--	11
O7. Transportation	++				++		+	++		+	--	---	-	---	--	-3
O8. Feedback					++	+	++		--	+	--	--	--	---	---	-8
T1. Financial	---	--	--	++	+	-	++		--		-	--				-8
T2. Field Trip restrictions	---				---	+		+		--	-	-	--	---	--	-15
T3. IDT					-	--		+			--	--		-		-7
T4. NCLB			--		--	+					--	--		--	--	-11
T5. I schedule	--	-		+++			+		--	--			--			-5
T6. No formal network					---	---	++		--	-	--	---		--	-	-15
T7.Organization		+++		++			-/+	+++	---	--	--	--		---		-4
Total	0	7	5	11	3	2	12	9	-15	-1	-16	-17	-9	-25	-16	---

+ And – are on a scale of three (one being low and three being high)

Conclusions from SWOT and SWOTI:

13.1
The following conclusions are drawn from the SWOT (Figure 1) and the SWOTI (Table 1) on the previous pages. Whereas the SWOT catalogues the strengths and weaknesses of the organization and examines how this are impacted external elements, the SWOTI looks at the interactions between the external threats and opportunities and the organizational strengths and weaknesses. The following emerged during analysis:

13.1.1. WonderLab's strong volunteer pool (S4) and articulate staff (S6) are its greatest strengths in relation to the threats.

13.1.2. The increases in field trip use (S5) are negated by the field trip restrictions (T2) and lack of educator network (T6).

13.1.3. WonderLab's lack of personnel to organize existing and develop new educational materials (W3) is one of its greatest weaknesses and negates the opportunity presented by the attractive website (O4) and the threats of NCLB (T4) and field trip restrictions (T2).

13.1.4. The lack of educational agenda (W6) minimizes the potential to partner with community members (O2) and to maximize the preschool use of the facility (S1, O1).

13.1.5. Having no educational agenda (W6) plays heavily into field trip restrictions (T2) that may arise.

13.1.6. Lack of developmentally educational materials that can be disseminated (W4) seems to be a result of not having a formal network (T6) in the WonderLab organization.

13.1.7. Hands-on activities (S3) would help the opportunities the pre-K area (O1) has to flourish.

13.1.8. Opportunities such as installation of acoustic technology (O3), further development of uber volunteers (O5), and the increase of touring exhibits (O6) could counteract the negative dynamics caused by large groups (W2) and further bolster school group use (S5).

13.1.9. The financial drain (T1) is a significant barrier to developing the pre-K program (W1) and leveraging existing materials (W4).

Force Field Analysis

14.1
The table below is drawn from the Findings and SWOTI and provides a descriptive link between these analyses and the forces identified in the Force Field Analysis. The left column describes the driving forces and the right the restraining forces. Further explanation of Force Field Analysis and how it is used can be found on page 15.

Educational Focus	
Districts require a clear educational focus NCLB requirements Passionate and articulate staff	Mission statement experiential Teachers also want experiential focus Passionate and conflicted staff
Teachers want educational focus Strong existing materials Web-based resources	Existing educational resources not collected Lack of personnel to develop and maintain
Communication	
Educator Feedback Strong staff in scheduling	Communication is logistical.
Professional Development Strong staff in scheduling	No Formal Educator Network Overworked staff Financial Drain
Special events and exhibits National Touring Exhibits Strong staff in scheduling	No Formal Educator Network Communication is logistical
Volunteers	
Volunteer hierarchy Strong Volunteer Base No scheduling constraints on volunteers	Volunteer training has experiential focus. Lack of clear role for volunteer Lack of consistent volunteer schedule
Demonstrations by volunteers Acoustic Technology	Noise level during large groups
Field Trips	
Guided exploration for field trips Teachers satisfied with field trip experience.	Not designed for large group use. Increasing high load days Open and flexible design
School group use continues to build Outreach programs as alternative Outside funding and promotional programs Alternative Transportation Community Partnerships for funding Unique to area	Transportation Restriction to primary because of perception*
Facility	
Open, welcoming design. Hands-on design for exhibits.	Financial Drain Noise level with large groups.
Preschool	
Increasing pre-K use during day Open all day/ hands-on Increasing interest in preschool programs	No onsite preschool staff Financial Drain No follow up with participants
Negative impact of large groups on pre-K	Increasing size of groups because of buses

Force Field Analysis and Migration Strategy

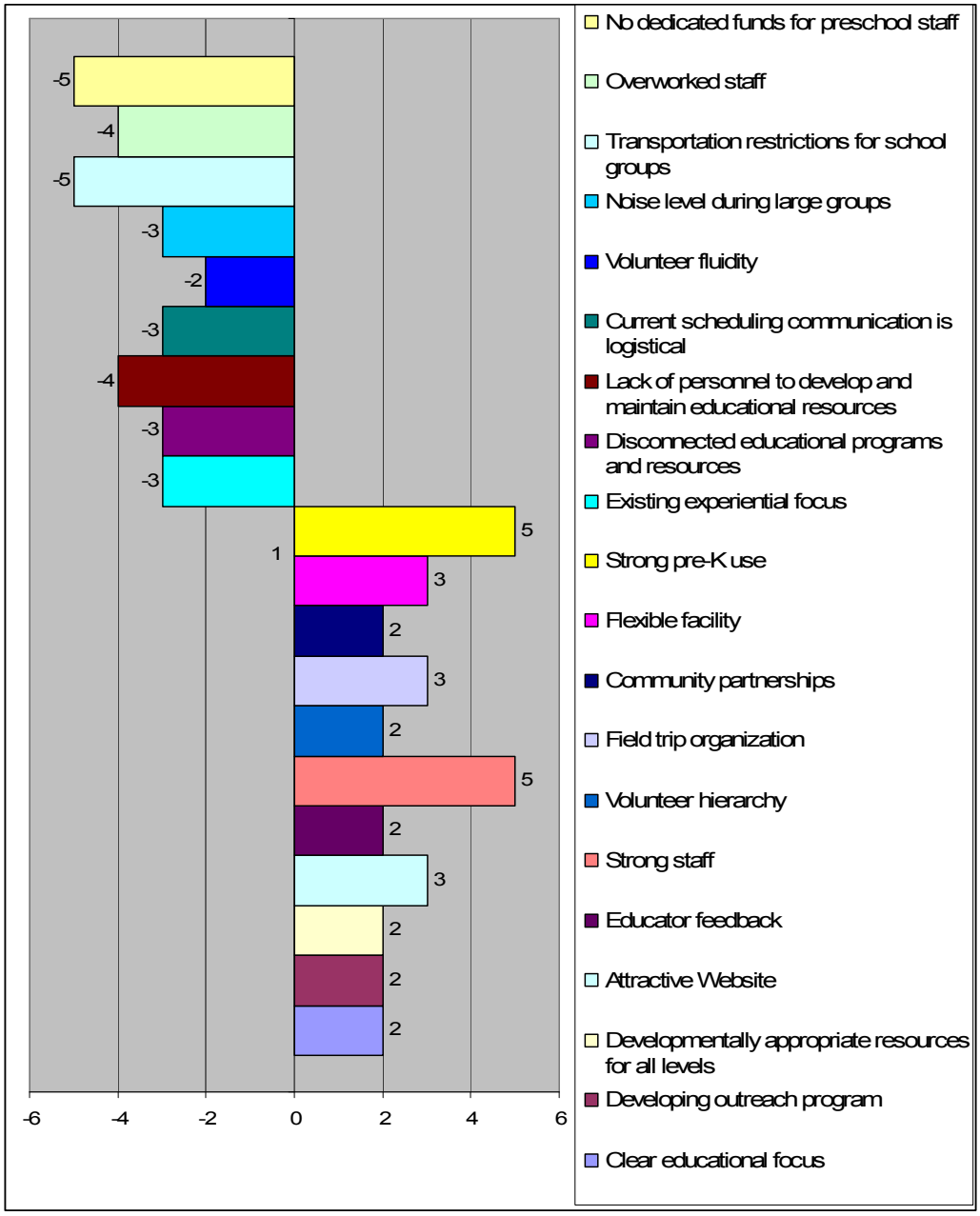
15.1
Not all changes can be made at once, so changes must be carefully plotted. A migration strategy allows the identification of changes that can be made, how they will affect the situation, and what the organization may look like in the future as a result.

15.2
The tool we use to accomplish this is called Force Field Analysis (henceforth referred to as FFA). FFA allows us to look at a "snap shot" of the organization. What this captures are the driving and restraining forces at play in the organization. Driving forces are the positive influences helping the organization along. Restraining forces are the negative influences that hold the organization back. If the restraining forces are larger than the driving forces then an organization may be unable to make progress, or in some instances, losing ground.

15.3
One the following pages you will see several different FFAs, these will be "snap shots" of the organization's current state, two months after implementation of some recommendations, and two potential future states once changes have been made to counteract restraining forces.

Migration Strategy Current State

16.1
Driving Forces Valency = 31 Restraining Forces Valency = -32



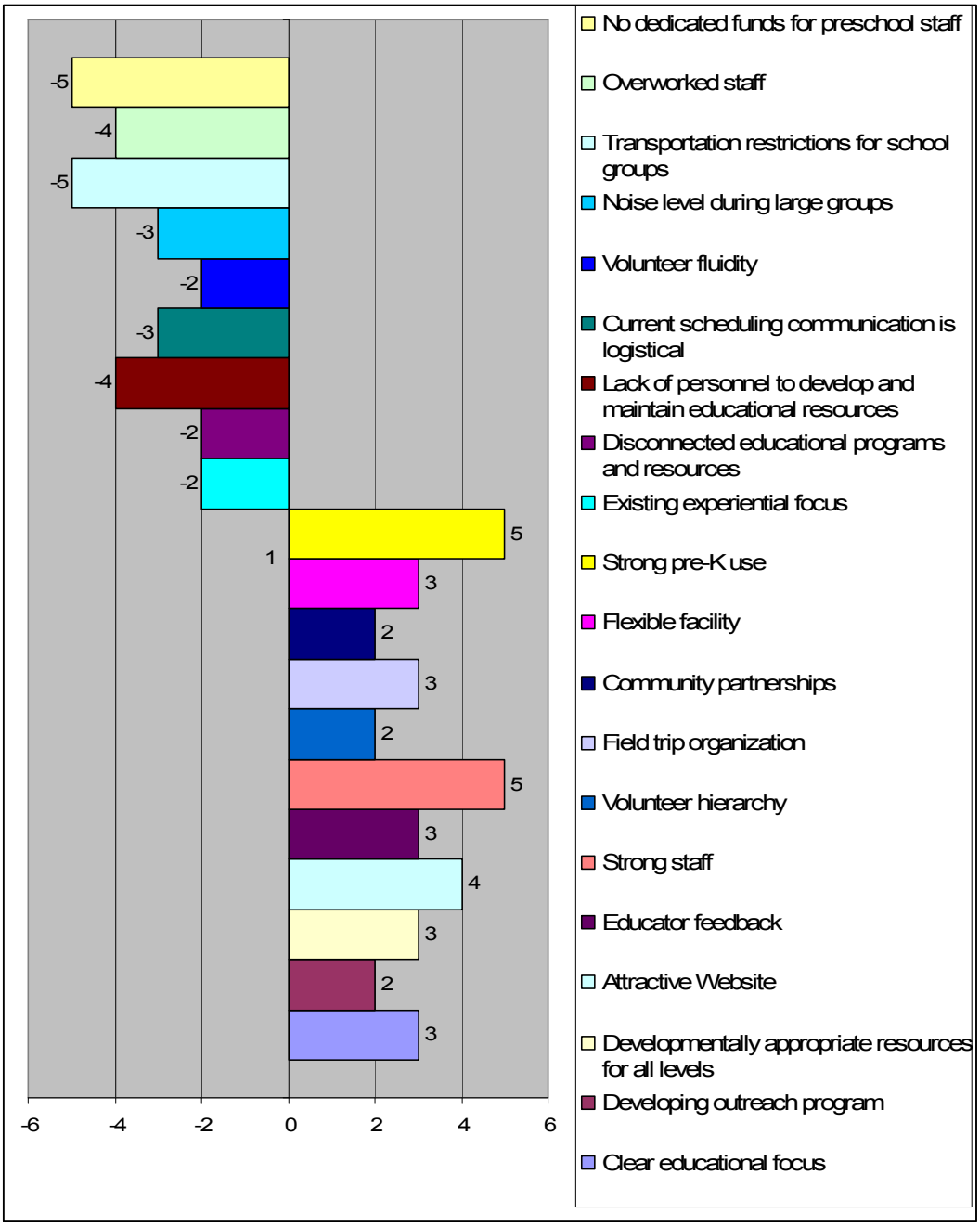
16.2
Explanation of the Force Field Analysis
As indicated by the valencies of the forces (Driving Forces Valency = 31 Restraining Forces Valency = -32) it can be observed that the two forces cancel each other out. This means that the organization is currently in stasis and unable to move forward with objectives that will offset the forces holding it back. However as you will see in the first future state, it is possible to make progress by focusing on the educational agenda,

Migration Strategy Future States

17.1

Force Field Analysis (Two Months)

Driving Forces Valency = 35 Restraining Forces Valency = -30



17.2

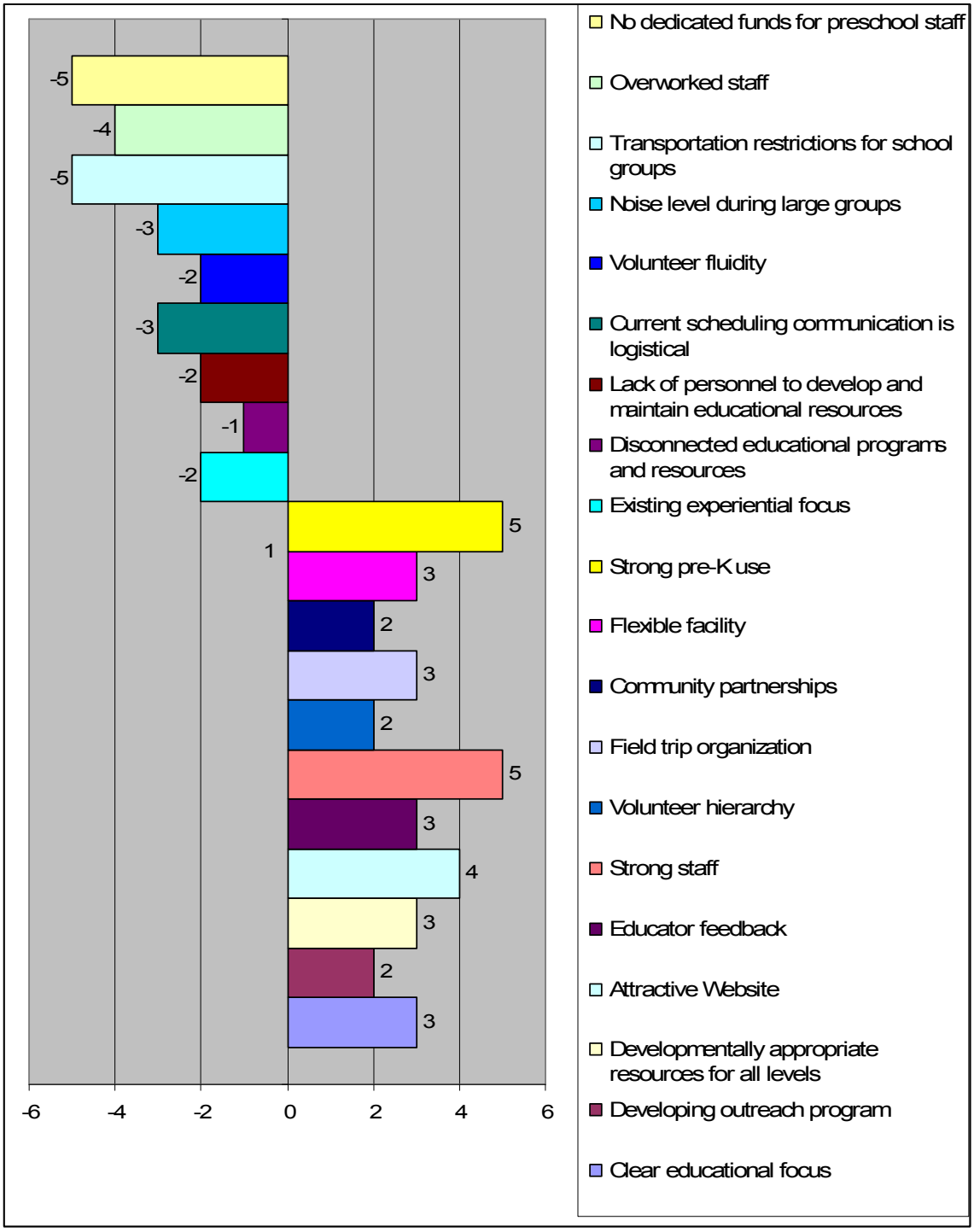
Explanation of the Force Field Analysis

As you can see, the organization has left the stasis and is now making positive progress. Now we'll consider two scenarios six months into the future with further focus on these earlier recommendations.

18.1

Force Field Analysis (Six Months without a pre-K advocate hire)

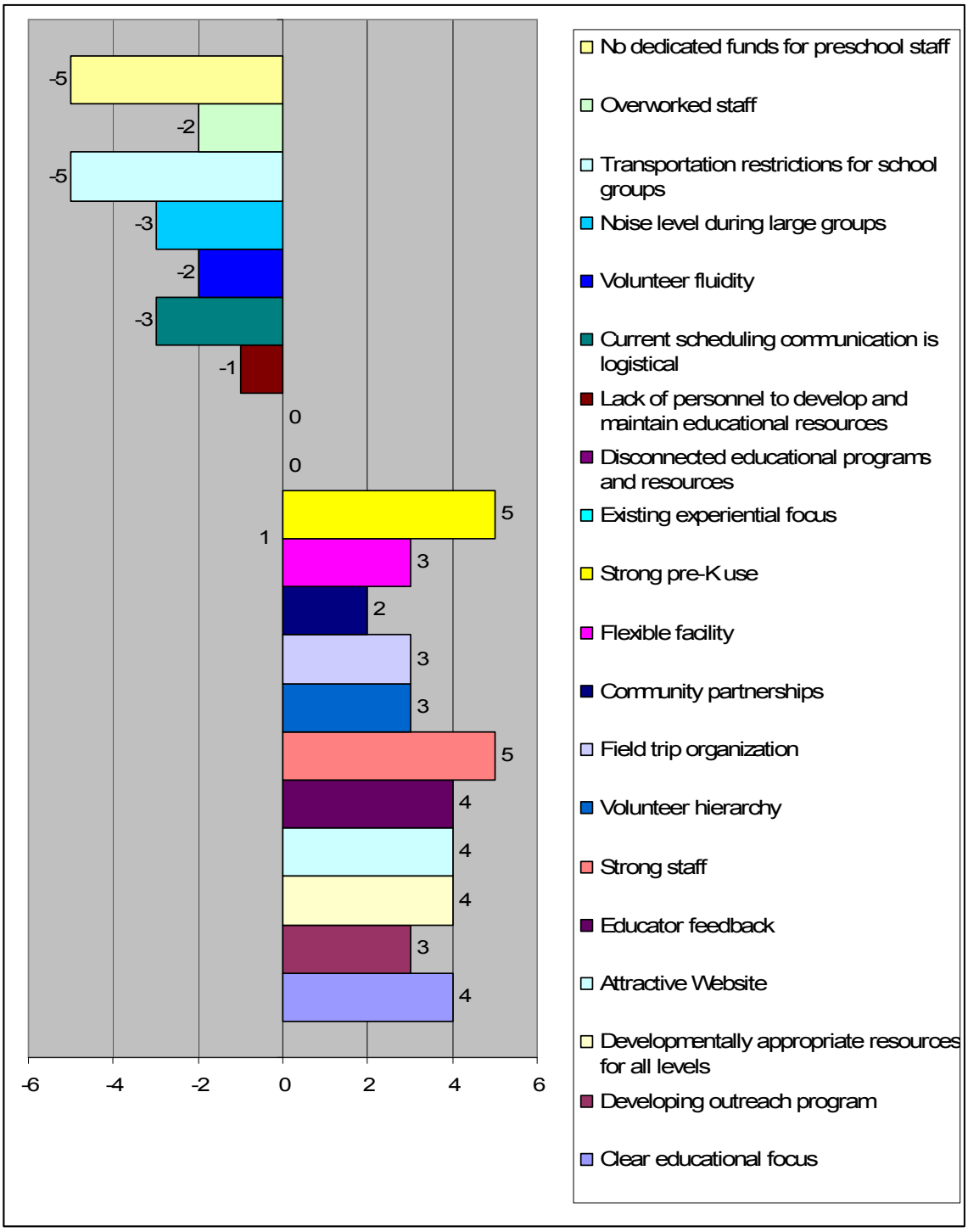
Driving Forces Valency = 35 Restraining Forces Valency = -27



19.1

Force Field Analysis (Six Months with a pre-K advocate hire)

Driving Forces Valency = 40 Restraining Forces Valency = -21



19.2

Explanation of the Force Field Analysis

As can be observed between the two six month FFAs, positive movement is attainable. However the addition of a pre-K advocate can address more forces simultaneously.

Recommendations

20.1

The following recommendations align with the force field analysis and current and future state of the migrations strategy. The main goal is to formulate an explicit educational agenda that incorporates all three aspects of the needs analysis and resolves the tension between seemingly oppositional forces (e.g., educational/experiential; structure/fluidity).

20.2

I. Develop a clear and comprehensive (pre-K to high school) educational agenda that maintains the experiential mission of the WonderLab while meeting the educational requirements of the constituents.
II. Provide developmentally appropriate educational resources that support that educational agenda on the Web page, in the facility, and through web-based and paper-based materials.
III. Expand current communication with school groups and pre-K programs to construct a network that raises awareness of educational agenda/resources and builds both programs.
IV. Integrate aspects of the educational agenda into volunteer training, including early childhood training, small group activities, awareness of educational resources and the agenda.
V. Investigate alternate ways to reach school groups: outside funding for transportation; public transportation; and outreach programs for convocations.
VI. Modify the facility as needed to support all groups included in the educational agenda (pre-K to high school).
VII. Work towards hiring a part or full-time pre-K advocate.

I. Develop a clear and comprehensive (pre-k to high school) educational agenda that maintains the experiential mission of the WonderLab while meeting the educational requirements of the constituents.

21.1
Rationale: The current educational climate requires an explicit educational focus for all expenditures of time and money. Prior to creating new programs and materials, WonderLab Staff should articulate their educational agenda from pre-school through high school and have specific staff serve as advocates for each stage of the agenda.

Implementation Phases: Immediate

21.2
CSF: Although an explicit educational agenda is necessary, it should not obliterate the experiential focus of the WonderLab. Staff should accept the dualistic nature of WonderLab philosophy—that it is both experiential and educational—and move along this continuum to meet the developmental needs of the child.

21.3
Consider creating an educational agenda: an articulated educational plan for pre-K to high school/college that brings together all of the educational programs and resources currently being offered by the WonderLab and aligns them with different developmental stages (and possibly standards). Ideally, the agenda should be a working document, maybe even a matrix, which will help WonderLab leverage existing resources and plan for the future.

21.4
Constructing the educational agenda should be a collaborative process that invites key personnel to be advocates for a particular developmental group (pre-K to high school/college). Prior to meeting with the staff who are currently involved in educational aspects of the WonderLab, take a moment to reflect on the current staff and how they might contribute to the educational agenda, even if their current role is not explicitly educational. For example, Jeanne Gunning might provide a vision for youth development at middle/high school, or a veteran volunteer might give insight into primary. It is also important to include a preschool advocate.

21.5
Once you have assembled your team, have each advocate take inventory for their group, or developmental stage, by answering the following questions:

- What do we currently offer this group that supports their ability to think scientifically?
- What are our educational goals for this group?
- How do these resources align with the standards for this group?
- What should we offer this group to support their learning?
- What educational supports are in place to ensure that this group moves from one stage to the next?

22.1
Consider all curricular avenues that might support learning including signage, volunteer training, Wonderpage, teacher-created materials, outreach programs, field trips, camps, demonstrations, Science on the Spot, etc… Have each advocate serve as a resource during the meeting and to follow up after the meeting.
22.2
After the initial meeting you may want to provide some more support to your educational liaison, Karen Stuckey, to help refine the agenda and collect the resources that will support that agenda. You may want to consider redefining Celeste's current role to work more closely with Karen Stuckey during the development and dissemination of the educational agenda. You can also use the draft agenda as a framework for collecting resources in recommendation II.

II. Provide developmentally appropriate educational resources that support that educational agenda on the Web page, in the facility, and through web-based and paper-based materials.

22.3
Rationale: Currently there are many excellent educational resources being used by the WonderLab; however, these materials have yet to be organized and disseminated to teachers and parents. In addition, the attractive WonderLab website has not been fully leveraged as a delivery device for educational materials.

Implementation Phases: Immediate

22.4
CSF: An understanding of how all educational programs and resources are part of a larger educational agenda will serve as a guide for collecting, organizing and disseminating the materials that support that agenda.

22.5
Using the educational agenda as a guide, make a list of those educational materials that might be disseminated to educators, parents or students. Next, create a wish list of resources that resources need to be adapted or created to better support the educational agenda of specific age groups (e.g., pre-K). Prioritize the list and disseminate it to current network of interns, staff and educators. As the communication system is refined (see recommendation III) the educator network will also be an excellent resource for teacher-created and classroom tested materials.

22.6
Determine the best way to deliver those materials that are ready to be disseminated to educators, parents and/or students (e.g., web) and set up infrastructure to support the delivery. For example, the current website could add to their group pages a section dedicated to educator materials that might have a special area dedicated to field trips. This section could include the following:

- Floor plan
- Field trip guidelines (from current mailer)

- Standards by grade level/or exhibit
- Revised Wonder Challenge pages
- Scanned and downloadable copies of currently available resources
- Tips from teachers (email feedback—updated quarterly)

III. Expand current communication with school groups and pre-K programs to construct a network that raises awareness of educational agenda/resources and builds both programs.

23.1
Rationale: The exceptionally strong staff in scheduling and the emergence of email as a primary communication tool in schools presents an opportunity to build a network of educators and parents that will support the educational agenda and raise awareness of the educational materials.

Implementation Phases: Within the next 6 months

23.2
CSF: A strong staff person in scheduling is essential in the initial development of the communication network.

23.3
To expand the current phone protocol at scheduling to include an educational focus, you could simply request an email address for each school group and professional development registration. This would serve as the beginnings of an email network that could provide feedback on experiences and input for resource development.

23.4
In addition, the scheduling intercept could also serve as a source of information about developmentally appropriate educational resources and materials (using the educational matrix as a guide).

23.5
The scheduling protocol could be further expanded to include a pre-visit email that would refer the educator to our website (e.g., field trip tips) and also follow up after the visit asking for feedback. This feedback could then be compiled into quarterly report to the Educational team. Feedback from quarterly report about organizational strategies for group visits or classroom connections could also be shared on the website.

IV. Integrate aspects of the educational agenda into volunteer training, including early childhood training, small group activities, awareness of educational resources and the agenda.

24.1
Rationale: The volunteer training at WonderLab needs to be more well rounded. They are working with children on a daily basis, and should know the specifics of how their audience works and reacts. By knowing what educational resources are out there, and how to properly conduct small groups better, based on specific, early childhood training, volunteers will take more control of their surroundings and play a greater role.

Implementation Phases: Within the Next Six Months

24.2
CSF: The volunteers need to know how children learn, and that not all children learn the same, so as to make all activities conducted the most conducive to all learning styles.

24.3
Have the volunteer base work more closely with early childhood educators, a couple days a week, in the greater Monroe County area, so as to understand where the young children they are working with are coming from.

24.4
These early childhood educators could come in and demonstrate how to pursue the activities and exhibits in the WonderLab Museum, from a child's perspective. They could explain to volunteers that all children, especially the pre-K crowd, learn and grow at different rates, and to not expect all children to be able to do activities on their own, or even like the activities for that matter. These could also explain to volunteers that many of the activities can be adapted for any age level.

24.5
Volunteer advancement and specialization should be promoted as much as possible. This would allow the volunteers to take on more duties while they are on duty. It will give them the chance to feel more valuable than if they are wandering through the gallery with no clear sense of what they are doing, and it could increase the sense that they are important to the WonderLab since they are able to offer more, which may help with the energy level by offering them more options.

V. Investigate alternate ways to expand school group use: outside funding for transportation; public transportation; outreach programs for convocations.

25.1
Rationale: The exceptionally strong staff in scheduling and the emergence of email as a primary communication tool in schools presents an opportunity to build a network of educators and parents that will support the educational agenda and raise awareness of the educational materials.

Implementation Phases: Within the next 6 months

25.2
CSF: Willingness by staff to think outside of "box" of the building, to make connections with schools.

25.3
Look for corporate sponsorship of intermediate grade field trips. Current district policies often allow for outside sponsorship of school field trips, but these opportunities might need to be spread equitably throughout the district. Consider building on one the outreach programs at the 4th grade level, so that WonderLab can provide the full "package" to schools: pre-visit activity provided by WonderLab (e.g., outreach or materials), WonderLab visit with experiential focus and possible demonstration or workshop, follow up teacher-led activity from Website.

25.4
Provide tips on website for public transportation use (e.g., bus numbers and maps). These resources can include feedback from teachers (see rec. III) about alternative transportation opportunities.

25.5
Provide links to outreach options on field trip page.

VI. Modify the facility as needed to support all groups included in the educational agenda (pre-K to high school).

25.6
Rationale: The WonderLab is an outstanding facility, but minor changes could be made that would make it even better. There are also other changes to consider in relation to an educational agenda that will serve patrons of all ages. This will allow WonderLab to serve a greater audience, but more importantly to provide new experiences for their patrons as they grow up and crave new experiences.

Implementation Phases: Within the next 12 to 18 months.

25.7
CSF: Each modification must be something that improves the quality of the visit to the WonderLab or its offerings. These changes must take into consideration the new educational agenda.

26.1
Develop alternative offerings onsite (or nearby) that will be of interest to older children, young adults, and other in the community. Alternative energy sources have been gaining attention with increased fuel costs. The WonderLab could partner with community leaders to do something on bio-diesel and converting cars. Not only would this cater to the interests of a variety of people in the community, but it could also be an opportunity to help foster a sense of environmental stewardship.

26.2
In the future development of exhibits give greater consideration to exhibits that will allow more than two people to use it at a time. There should also be a side consideration to mobility. If only a few patrons can experience an exhibit it can put them off and have them move to other things. If enough people can't interact with exhibits they want to, there is the risk that they may leave. The mobility aspect adds the interesting possibility of having exhibits that can be taken off the floor at different intervals and replaced with others. Greater variety may increase usage and visits.

26.3
Revise the signage to be more colorful and engaging. If a point can be just as easily articulated through a visual representation then that is what should be used. If there is concern about overly simplifying then consider multiple instances for different levels of patrons or developing takeaway sheets for further enrichment. Additional signs or information should be placed at a lower level since many of the patrons are younger children. Currently the signs are roughly four to five feet off the ground and not accessible to them. These types of changes would make the signage more interesting, cater to a wider audience, and in general promote greater usage.

26.4
Install noise dampening devices or absorbent materials too minimize the noise level in the WonderLab. This will allow the noise to be maintained at a reasonable level and not deter patrons from staying. It will also allow people to better hear leaders and presentations.

VII. Work towards hiring a full-time pre-K advocate.

27.1
Rationale: There is no full-time, pre-K advocate at WonderLab, and it has become apparent, from several interviews and observations, that there is a dire need for one. There needs to be someone on staff that can speak for the "little ones" who are still learning and growing, someone that can act as a liaison between WonderLab and the local community, and someone that can work with parents to adapt museum exhibits and activities to those activities that can be done on the home.

Implementation Phases: Within the Next Six Months

27.2
CSF: Having a good source of funding is the most important factor in even hiring a full-time, pre-K advocate.

27.3
Discuss the benefits of hiring a full-time pre-K advocate: There is someone that can speak for the "little ones," someone to act as a liaison between WonderLab and the local community, and someone to work with parents to adapt the museum experience to experiences in the home.

27.4
Discussing ways to increase funding to hire a pre-K advocate would just be an adjunct to knowing the benefits. WonderLab could produce fliers to email/send to museum members, explaining the benefits of the said advocate, asking for any extra funds, and possibly extra ways to raise more money. Also, they could produce fliers to distribute community-wide, explaining the benefits of the said advocate, asking for any extra funds.

27.5
Even better, WonderLab could draft a research proposal to apply for a grant, possibly through the work of an intern or local pre-K educators, to acquire the money that could pay the said advocate.

Values Propositions or Benefits

28.1
The following table looks at the value of each recommendation. *Value* is calculated by subtracting the *worth* minus the *cost*. Worth is determined by how beneficial a recommendation might be for the WonderLab. Cost considers financial, time, and overhead expenses that will be needed to implement a recommendation. In the end you are presented with an abbreviated cost/benefit analysis.

28.2
The Roman numeral corresponds with the number of the recommendations on page 20 (20.2). We used a scale of one to seven (one being low, seven being high) to calculate value.

Recommendation	Worth	Costs	Value
I. Educational Agenda	6	2	4
II. Educational Resources	6	4	2
III. Communication network	4	1	3
IV. Volunteer training with educational focus	5	2	3
V. Alternate ways to reach groups	5	5*(3)	0(2)
VI. Modify facility	4	4	0
VII. Hire pre-K Advocate	6	5	1

* - without current drive to expand outreach; ( ) – Indicative of how it relates to current initiatives

Impact Analysis

29.1
The Impact Analysis looks at the potential effort needed to implement a recommendation and what kind of impact it may have. It illustrates the idea of trade-offs in any recommendation that might be pursued.

High Impact/Low Effort	**High impact/high effort**
• Educational Agenda • Volunteer training with educational focus • Communication Network	• Educational Resources • Alternate Ways to Reach Groups • Hire pre-K advocate
Low impact/low effort	**Low impact/high effort**
	• Modify Facility

29.2
As you can see above, developing an educational agenda, increasing volunteer training, and further development of a communication network all require relatively little effort for high impact results. Why these have been labeled as low effort is because the main element here is time. There are already some outstanding resources and people in place, they just need to repurposed to get the maximum benefit out of them.

29.3
Meanwhile three of our recommendation will require a high level of effort, but will also yield high impact results. While some of the resources are wonderful, there are many that need to be refocused for the younger patrons that are visiting the WL in increasing numbers. Such retooling will take greater effort than just taking advantage of what is already present. The hiring of a pre-K advocate could speed this process along and be a great benefit to further pre-K initiatives; however, the high effort element here is the financial expense. In addition, looking at other ways to reach groups will require thinking about new functions for the WL as well as revising existing offerings to serve new groups.

29.4
The last recommendation is currently very high effort to pursue and that effort is in the form of a substantial financial outlay. Such modifications vary from making the facility more accessible for larger groups, reducing the noise levels, and introducing additional exhibits for the museum and for travel to schools as part of the attempt to reach more groups. The impact is currently low since it would be serving the same patrons that are currently using the WL. However once the high impact recommendations have been addressed it is our belief that this recommendation will quickly move into the high impact designation, though there still will be a significant cost involved. Approaches to these recommendations are detailed earlier in the Recommendation section (pgs. 20-27)

Conclusion

30.1
The original goal of the study was to determine the best way to meet the needs of those groups currently using WonderLab during school hours. In particular we focused on how to optimize the experiences of pre-K children and school-age children who attend in groups. What emerged was a need to embrace the duality of the WonderLab: the museum experience should be both experiential and educational; the staff and volunteers require both fluidity and structure; and the facility is both a catalyst and a barrier for change. In its current state, the WonderLab tips toward an experiential, fluid approach that is confined to the facility; however there is a clear need for a structured educational approach reaches beyond the building.

30.2
To take the first step in establishing an appropriate balance, the WonderLab can create an educational agenda that not only aligns the current educational resources along a developmental continuum, but also provides a frame to make decisions about those elements that impact the educational experiences of visitors from pre-K to high school/college (rec. I). Impact analysis has shown that this is a high impact, yet low cost recommendation.

30.3
WonderLab can support that educational agenda with appropriate resources (rec. II) and disseminate some of those resources to educators and parents via an expanded communication network (rec. III). Although collecting and developing educational resources requires more cost to the organization, it aligns closely with the strategic plan and would not only support other programs, such as professional development, but would leverage existing resources. Furthermore, increasing the scope of communication at scheduling (rec. II) might provide both an impetus and a resource for development.

30.4
WonderLab can also use the educational agenda to inform decisions about volunteer training (rec. IV), especially in the areas of youth development and awareness of developmentally appropriate activities and resources. Like the staff at scheduling, volunteers could be a ready resource of the educational agenda at each developmental level. This recommendation is also a high impact, low cost intervention.

30.5
WonderLab can plan for the future by investigating ways to reach school age and pre-K children beyond the facility, or to bring them in to the facility through outside funding (rec. V). With the strong staff in development and the new focus in outreach, this is a challenging, but not impossible task. Care should be taken to use the educational agenda to create packages that can be presented to potential community partners or donors. This approach can also be used to entice community partners to help modify the facility (rec. VI). With a clear educational focus and articulated developmental need, development can be more effective.

31.1
WonderLab can also work towards hiring a pre-K staff person or making pre-K expertise a consideration in any new hire for existing positions. Furthermore, a reorganization of staff around the educational agenda might open up funding for a part-time pre-K position that also supports aspects of the educational plan.

31.2
To conclude, although WonderLab's current educational programs and activities provide powerful learning experiences, they are often disconnected; they are a handful of pearls waiting to be strung. To help string these precious commodities together, and in doing so wear them in public, WonderLab needs to move to the next level of educational planning. With the development of an overall strategic plan and the maturation of the facility, this is the ideal time to take stock of the educational strengths and think creatively about the educational weaknesses of this dynamic and valuable community resource.

Appendices

Appendix A: Letter of Authorization

Appendix B: Strategic Plan and Needs Analysis Recommendations

Appendix C: Detailed Findings from Data Analysis

Appendix D: Resources

WONDERLAB
THE MUSEUM OF SCIENCE, HEALTH AND TECHNOLOGY

Needs Analysis Team Members
Lynn Clark, Jesse Strycker, Angela Cataldo
Instructional Systems Technology Department
Wendell W. Wright Education Building
201 North Rose Avenue
Bloomington, IN 47405

September 28, 2005

Dear Team Members,

Wonderlab authorizes you to design and implement a study to examine the expectations and needs of group and general museum visitors, assess how effectively Wonderlab is currently meeting these expectations, and evaluate ways to better meet these expectations during school hours. This study will be carried out through interviews conducted with museum personnel, museum volunteers and members of the community. In addition, the team will conduct a series of observations to track the patterns of use during the target hours. If possible, a short survey will be distributed to past participants of the school-hour programs (e.g., teachers, pre-school parents).

We would like your report to be completed by December 7, 2005. The report should include the interview and observation protocols, an analysis of your data, the conclusions you have drawn form the data, including needs you have identified, and the recommendations you can make to assist WonderLab in its pursuit of the optimal museum experience during school hours.

Sincerely,

Karen Jepson-Innes

Karen Jepson-Innes
Associate Executive Director
WonderLab Museum

308 W. Fourth Street Bloomington, IN 47404 812-337-1337 812-330-1337 fax www.wonderlab.org

Appendix B: Strategic Plan and Needs Analysis Recommendations

The following chart is an attempt to align the needs analysis recommendations with the draft strategic plan. As the sub-points were not numbered, we have numbered to the bullet points consecutively within sections 1 and 2 for easy reference.

Strategic Plan: Core Strategies	**Needs Analysis: Recommendations**
1.a. with the Development Department (and Board?) to secure funding for new individual exhibit purchases & projects, rental fees for traveling exhibits, and exhibit upgrades and replacements.	VI. Modify the facility as needed to support all groups included in the educational agenda (pre-K to high school).
2. Expand roles of gallery staff and volunteers to enhance the visitor experience.	IV. Integrate aspects of the educational agenda into volunteer training, including early childhood training, small group activities, awareness of educational resources and the agenda.
3. Enrich museum programming for families and the general public. a. Add demonstration and activity topics to enhance the museum experience.	II. Provide developmentally appropriate educational resources that support that educational agenda on the Web page, in the facility, and through web-based and paper-based materials.
3.b. Expand programs and resources for preschool-age children and their families	VII. Work towards hiring a part or full-time preschool staff person.
4. Identify and respond to the needs and interests of visiting school groups, to enrich their museum experience and promote repeat visitation.	I. Develop a clear and comprehensive (pre-K to high school) educational agenda that maintains the experiential mission of the WonderLab while meeting the educational requirements of the constituents
6. Strengthen public communications.	III. Expand current communication with school groups and pre-K programs to construct a network that raises awareness of educational agenda/resources and builds both programs.
10. Decrease financial barriers for schools, low-income families and community organizations.	V. Investigate alternate ways to reach school groups: outside funding for transportation; public transportation; outreach programs for convocations.

Appendix C: Detailed Findings from Data Analysis

10.2

Educational and Experiential forces

10.2.1

Teachers want both an educational and an experiential focus for their WonderLab field trips. When asked what would increase the quantity of their visits to WonderLab, a group of educators responded that would like more ties to their classroom curriculum to make the experience valuable to their students. It is important to note that this same group of teachers valued the hands-on nature of the WonderLab and wanted to make the connection in the classroom, so that students would be free to explore at their own pace when they visited the WonderLab. "We are a small school," explained one teacher, "the WonderLab helps us to meet us to meet the hands-on benchmarks."

10.2.2

School Corporations require a clear educational focus for field trips. In addition to a decrease in funding for field trips, those field trips that are approved must have a clear education focus and be aligned to grade level standards. Several teachers requested grade level standards alignment be made available on the website. Locally, WonderLab is a corporation-sponsored field trip only at the Kindergarten level, whereas Honey Creek is sponsored for both 2nd and 4th grade. It is interesting to note that teachers often use the Honey Creek field trip as the culmination of a social studies unit or project, and see it as an essential part of their curriculum at those grade levels.

10.2.3

Existing educational resources for group visits are underused. Currently the only resource designed for school group use if the Wonder Challenge; however, in the last year only two groups requested the paper-based handout. Although staff are in the process of redesigning the Wonder Challenge to make it more developmentally appropriate, the idea of giving students a handout in a hands-on environment is not supported by research. What is supported by research are pre-visit and post visit activities that tie to the exhibits in the museum. Of those teachers interviewed, most had students reflect in writing after the field trip. One teacher also created an activity, The WonderLab ABC's, to debrief. A few teachers also "talked them through" the museum before visiting. All teachers interviewed felt they would use pre- and post-visit activities if they were made available. Although there are powerful educational resources being used throughout the WonderLab and as part of camp and outreach programs (including the NIE Wonderpage), these materials have not been archived and organized for teacher use.

10.2.4

The experiential focus of the mission statement of the WonderLab does not fully reflect the values of the organization leaders. Although the language in the mission statement and the basic values stated in the draft strategic plan is predominantly experiential, interviews with key personnel showed equal value being placed on the educational and experiential mission of the WonderLab.

10.2.5

Volunteer training has shifted from an educational focus to an experiential focus. Even though an effort is being made to follow up the initial training with additional training in specific content areas, volunteers are primarily instructed to help visitors explore the exhibits and have fun. This shift was in response to the predominantly younger demographic attending the WonderLab. And although the signage in the museum is intended as a support for volunteers and parents, parents interviewed during one visit did not even notice the signs. During observation, very few people looked at the signage, though some chaperones did use the accompanying materials (i.e. Information cards at the aquarium.).

10.2.6

Communication with school groups is primarily logistical. School groups are usually scheduled via phone, during which contact information (excluding email) and logistical information are gathered. A letter with logistical information follows up the initial contact. Upon arrival, the floor manager provides behavioral guidelines and logistical information to students and their chaperones. Currently there is no follow up with groups after the visit. Although an email newsletter is sent out periodically to principals, it is reliant on the principal to pass that information on to teachers.

10.3

Fluidity and Structure

10.3.1

Educators value a "guided exploration" approach to field trips. Interviews with educators who experienced the WonderLab during high load days or brought large groups valued an organized approach. One teacher explained that, "if I just let them roam around, they are going to stay at one place or they are going to run—that affects their learning and the learning of others." Teachers who brought large groups often organized the students in small static groups with a chaperone and restricted them to one floor for a portion of the field trip (switching floors midway). Interviews with key personnel also highlighted the need for clear behavioral expectations for large group use, a cap on the total number of students during group use, and an organizational structure that might restrict groups to certain areas of the museum for a period of time.

10.3.2

Although there is perceived negative dynamic on high load days, teachers who visited on these days are generally satisfied with the experience. Analysis of SY 2004-2005 school group visits revealed that there were nine days when multiple school groups exceeded 120 students at one time; these nine days were all within a one-month period from April 20th to May 20th. In addition there were four individual groups that exceeded 120 students. Follow-up interviews with six teachers who visited on different high load days revealed a high satisfaction level with the experience. It is important to note that each of the teachers had organized her students into small static groups with a chaperone, and that two of the teachers had been volunteers at the WonderLab when they were in college. Although there are isolated instances on record where teachers have responded negatively, the level of satisfaction of these teachers suggests that high noise levels and crowded atmosphere are not detrimental when the groups have an internal organization.

10.3.3
On the other hand, direct observations of large group visits showed that students in large groups sometimes "ping-pong" between exhibits, spending only one to two minutes per exhibit. Research suggests that this may be due to the novelty effect, and that student experiences can be significantly enhanced by a pre-visit virtual tour or museum floor plan. Such crowds also limit the types of volunteer interaction available as they are confined to serving more as "traffic cops" than anything else.

10.3.4
A core of teaching volunteers should be developed and the role of volunteers during group visits clarified; however the fluidity of volunteer schedules should remain an option. The WonderLab must have volunteers to function in its current capacity and it must be able to expect a certain number on a regular basis. However too many restrictions would limit the number and variety of people who volunteer. This scenario has always provided the WonderLab with a viable group of volunteers as needed. However they can never be sure who they will get from week to week. This means that volunteers won't always be paired to their strengths and in ways that may be more helpful to WonderLab (i.e. Retired teachers during field trips to help increase the educational aspect).

10.4
Stasis and Change

10.4.1
Although school group use continues to build beyond the Bloomington area, restrictions on field trips are limiting local use. When you compare the schools that attended in SY 2003-2004 to those that attended in SY 2004-2005, there were 38 new schools compared to only 8 schools that no longer attended. In fact, almost half of the school groups attending in 2004-2005 were new to the WonderLab and represented several districts beyond the immediate Bloomington area. Of those eight schools that did not attend in 2004-2005, none were from the immediate area; however, of those continued to attend, but decreased in attendance half were situated in Bloomington

10.4.2
Outside funding and promotional programs have a positive impact on school group use of the WonderLab. Ten schools increased in attendance from SY 2003-2004 to SY 2004-2005; half of those were from the immediate Bloomington area. It is noteworthy that of those five schools, four took advantage of the Monroe County kindergarten grant to increase their attendance. A promotion that was offered in September of last year (free entry to chaperones) also produced an uncharacteristic spike in attendance.

10.4.3
Special events and exhibits are incentives for school groups to visit. Several teachers mentioned that they liked the touring exhibits and often would check to see what was "special" before planning their field trip. One teacher noted that she liked the demonstrations during high load days because, "it helped to have another place to go and a human talking and giving feedback" to students. One principal, who had reduced the number of school field trips at her site, commented that she would "make it happen" if there was a special event or exhibit that connected to the science curriculum.

10.4.4
Teachers view WonderLab outreach programs as an alternative to field trips. During one group interview, several middle school teachers requested that the early outreach programs of the WonderLab be reinstated for schools that could no longer take field trips; they pointed out that although there was no money for field trips, there was plenty of money for on site convocations.

10.4.5
Transportation is the major obstacle to field trip use. Several school corporations have restricted field trips because of fuel costs to none or only one a year; and often the destinations are determined at the district level. An email survey and interviews with local principals showed that districts are using public transportation and outside funding (PTO, sponsorship of busses) to facilitate field trips. Although outside funding is an option for the local corporation, issues of equity are currently being discussed. There is a strong possibility that if sponsorship is offered to a grade level at one site, it must also be offered to all children at that grade level in the corporation.

10.4.6
Although the larger facility was intended for older children, the predominant non-group use during school hours is by pre-K children. The preschoolers have dedicated areas within the Discovery Garden, but they often move into the larger facility. A few parents felt that their pre-K children are restricted, in terms of the full museum experience, when large groups or older children are using the WonderLab facility. They don't want their children to feel they have to stay in the Discovery Garden. Furthermore there is no on-site pre-school advocate at the WonderLab. During interviews and observations, it became clear that although efforts had been made to fill the gap with contractors, a consistent voice that could speak for pre-K children and their parents, and liaise with pre-K teachers in the greater Monroe County community was needed.

10.4.7
The WonderLab may need to be adapted for large group use. The open layout of the structure can contribute to a high noise level and chaotic atmosphere during group visits. During large group observations the noise level made on-the-floor demonstrations to groups difficult (e.g., science on the spot, Mr. Stuffee). Furthermore, groups promise to get larger as school groups are required to fill buses to the maximum (66-84) because of transportation costs. Currently, many of the exhibits can only accommodate two or three people. During one observation, students used the elevator and stairs to race between floors. Far from being a negative example, this misuse offers insight into the kinds of experiences in which groups of students might engage.

Appendix D: Resources

The following research articles and online resources informed our analysis during the study.

Bailey, E. (2005). *Science Centers and Schools*. Retrieved October, 15, 2005, 2005, from http://www.astc.org/resrouce/education/bailey.htm

This article provides a comprehensive review of the current literature related to school group use of science and technology museums.

Perry, D. L. (1993). Beyond cognition and affect: The anatomy of a museum exhibit. In D. Thompson, S. Bitgood, A. Benefeld, H. Shettel, & R. Williams (Eds.), Visitor studies: Theory, research and practice (Vol. 6, pp. 43-47). Jacksonville, AL: Center for Social Design.

Perry, a museum researcher and graduate of Indiana University, offers a theory of what makes museum visits successful based upon her own museum research at the Children's Museum of Indianapolis. Her theory, titled "anatomy of a museum visit," has twelve components divided into three basic expectations that people have when visiting a museum: interactions, needs, and outcomes. Perry concludes that research on designing exhibits or measuring learning needs to take into account all of the above components instead of just a few as they have done in the past.

Schatz, D. (2004). The Field Trip Challenge: Findings Common Ground. *Dimensions, October 2004*.

Schatz, who is the VP in charge of education and exhibits at the Pacific Science museum in Seattle, shares his lessons learned in the field about field trip organization.

http://museumlearning.com/scripts/gosearch.php provides an excellent database of research literature related to children's museums.

General Comments

Angela Cataldo: I highly enjoyed working with WonderLab and the pre-K aspect of the project. There is such a great potential for the preschool programs at WonderLab, and I hope to work with WonderLab in the future to develop their potential, using my own early childhood background and experience.

Jesse Strycker: The WonderLab is a unique entity within the community that shouldn't fear making minor changes to what has been a successful formula. Tweaks and changes will allow a rare gem to not lose its luster.

Lynn Clark: As a mother of two, I value WonderLab both as a community and as a personal resource. I feel honored to have bee able to participate in this study that hopefully will help WonderLab to articulate and pursue its mission.

Signature:_____
Date:_____

Signature:_____
Date:_____

Signature:_____
Date:_____