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Evaluation as Investment

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COMMON EVALUATION TERMS

RESPONSIVE EVALUATION—evaluation strategies designed to respond to the needs, interests and perceptions of the audience, rather than being guided by a priori criteria. The recipients of the evaluation shape the direction of the inquiry as it proceeds.

NATURALISTIC EVALUATION— observation and interviews that focus on naturally occurring behavior (nothing manipulated) in a selected context. Emphasis is placed on capturing, as completely as possible, the range of visitor behaviors.

FRONT- END EVALUATION—finding out, before you begin planning an exhibit, what people know, what their particular interests in the exhibit topic are and any misconceptions they hold.

FORMATIVE EVALUATION—usually involves constructing inexpensive mock-ups of a proposed exhibit, its components, or labels and asking visitors to try them or react to them in some way. Allows you to assess how well a particular component of the exhibit communicates its intended message.

REMEDIAL EVALUATION- similar to a construction “punch list” and conducted shortly after an exhibit is open to the public. One watches for such things as how visitors are using the exhibit components, functionality, and visitor flow.

SUMMATIVE EVALUATION—analysis of exhibit effectiveness approximately six months to one year after it opens. Provides information on such questions as: “How is it working?” “What isn’t working?” “How can it be improved?” “What is happening that we didn’t expect? Provides information that can inform future exhibit development and can offer possible recommendations.

SAMPLING TO REDUNDANCY—the point at which data begin to become highly repetitive- nothing new is being generated. Commonly observed in qualitative evaluation. By definition, a less-than statistically-significant sample size.

HOLDING POWER—the length of time an exhibit element engages visitors.

MAGNET ELEMENTS—the components in the exhibit that large clusters of the sample audience are drawn to. Often stated within a designated time-frame.

INFREQUENTLY-VISITED ELEMENTS-- those exhibit elements which attract a low percentage of the sample audience. Often stated within a designated time-frame.

POINTS OF INTEREST—exhibit elements or areas where smaller clusters of visitors pause, point, touch, exchange comments.

PROBING- encouraging respondent to clarify or add to his or her answer. Probes must be neutral in tone so they do not influence the respondent’s answer. Probes “drill” deeper and are based on what the visitor has already stated.

USE TERMS CONSISTENTLY:

Attaching a percentage to words that are commonly used contributes to understanding. The percentages here are guidelines; they can be helpful in both quantitative and qualitative reporting. It is helpful to readers if you explain your terminology when it comes to these descriptors.

All= 99-100%

Most= 75-98%

Majority= 60-74%

Many= 40-59%

Some= 25-39%

A few= 5-24%

Very few=1-4%

Overview of Methods to Collect Information

Method	Overall Purpose	Advantages	Challenges
questionnaires, surveys, checklists	when need to quickly and/or easily get lots of information from people in a non-threatening way	<ul style="list-style-type: none"> -can complete anonymously -inexpensive to administer -easy to compare and analyze -administer to many people -can get lots of data -many sample questionnaires already exist 	<ul style="list-style-type: none"> -might not get careful feedback -wording can bias client's responses -are impersonal -in surveys, may need sampling expert - doesn't get full story
interviews	when want to fully understand someone's impressions or experiences, or learn more about their answers to questionnaires	<ul style="list-style-type: none"> -get full range and depth of information -develops relationship with client -can be flexible with client 	<ul style="list-style-type: none"> -can take much time -can be hard to analyze and compare -can be costly -interviewer can bias client's responses
documentation review	when want impression of how program operates without interrupting the program; is from review of applications, finances, memos, minutes, etc.	<ul style="list-style-type: none"> -get comprehensive and historical information -doesn't interrupt program or client's routine in program -information already exists -few biases about information 	<ul style="list-style-type: none"> -often takes much time -info may be incomplete -need to be quite clear about what looking for -not flexible means to get data; data restricted to what already exists
observation	to gather accurate information about how a program actually operates, particularly about processes	<ul style="list-style-type: none"> -view operations of a program as they are actually occurring -can adapt to events as they occur 	<ul style="list-style-type: none"> -can be difficult to interpret seen behaviors -can be complex to categorize observations -can influence behaviors of program participants -can be expensive
focus groups	explore a topic in depth through group discussion, e.g., about reactions to an experience or suggestion, understanding common complaints, etc.; useful in evaluation and marketing	<ul style="list-style-type: none"> -quickly and reliably get common impressions -can be efficient way to get much range and depth of information in short time - can convey key information about programs 	<ul style="list-style-type: none"> -can be hard to analyze responses -need good facilitator for safety and closure -difficult to schedule 6-8 people together
case studies	to fully understand or depict client's experiences in a program, and conduct comprehensive examination through cross comparison of cases	<ul style="list-style-type: none"> -fully depicts client's experience in program input, process and results -powerful means to portray program to outsiders 	<ul style="list-style-type: none"> -usually quite time consuming to collect, organize and describe -represents depth of information, rather than breadth

One sheet

POC Take Action Revision One Sheet

7.16.08

Take Action #5

TOC

STATUS: Interactive concept approved, final in production

	POC Take Action Revisions / Build a Make a Difference Tree
Visitor Goal	Younger children (preK-8) and their families build a “Make a Difference” tree with magnetic pieces that offer clues to making a difference.
Messages	There are many ways -- big and small – to make a difference. We can rely on help from our family and others in making a difference.
Developer’s Objectives <i>(output)</i>	Children and families talk about ways to make a difference as they build the tree.
Anticipated Family Interactions <i>(outcomes)</i>	Participation such as: children and/or adults talking as they build the tree and apply the leaves; adults looking at labels and discussing information on leaves or labels and applying it to child’s life; children noticing graphics on leaves and/or tree. Problem-solving such as: family members work together to build the tree from the ground up. Enhancement such as: adult provides guidance and encouragement in building the tree and/or in relating content from labels or leaves to child’s life.
Exhibit Elements <i>(interactives)</i>	Families use magnetic pieces to build a “Make a Difference” tree, using pieces for the trunk and branches with words relating to simple ways to make a difference and applying leaves that demonstrate an action they could take.
Exhibit Elements <i>(environment)</i>	<ul style="list-style-type: none"> • Labels on the base will refer to what Anne, Ruby and Ryan did to make a difference and encourage kids to make a difference, too. • One and two-word phrases on the trunk and branch magnetic pieces • Graphics and short phrases on the action leaves.



Logic Model Worksheet

For an electronic version, visit: <http://www.shapingoutcomes.com/course/model/index.htm>

Name:		Date:	
I. Situation: program partners and stakeholders			
What is the program’s name ?			
What partners are involved?			
Who are the program’s stakeholders ?		What does each stakeholder want to know? (Be sure to include yourself, your target audience, partners and any other stakeholders.)	
II. Program planning: connecting needs, solutions, and results			
Who are the audiences ?			
What are the needs of the audience?			
What are some audience considerations ?			
What solution fulfills the needs?			
What will be the desired results ?			

V. Outcomes				
Outcome 1:				
Indicator(s)	Applied to	Data Source	Data Interval	Target
Outcome 2:				
Indicator(s)	Applied to	Data Source	Data Interval	Target
Outcome 3:				
Indicator(s)	Applied to	Data Source	Data Interval	Target
Outcome 4:				
Indicator(s)	Applied to	Data Source	Data Interval	Target

GUIDELINES for OBSERVATION AND TRACKING

Remember: think of observation as empirical watching. Focus and concentrate!

1. Post signage in a visible place to the effect that your "museum is collecting data on the exhibit for design and development purposes."
2. Schedule observations for weekdays, weekends, evening hours, holidays, special events.
3. Carry only observation/tracking forms and 2 lead pencils with erasers.
4. Randomize your selection of target visitors by age, gender, type of cohort group, race/ethnicity
5. Try to avoid direct eye contact with visitors (your targets) while you are tracking and counting seconds.
6. Choose vantage points where you can observe the behavior as well as hear what visitors are saying (as close as possible WITHOUT intruding on the visitor's experience.) Avoid influencing visitor's behavior.
7. Record timed data:
 - Entry time to exhibit
 - Exit time from exhibit (not including interview)
 - Elapsed time in exhibit
 - Duration at each exhibit component or element
8. Complete a running narrative of what target visitor does and says. Record as many specific notes as possible. (The biggest mistake of observers is that of writing general notes.) Tell exactly what the target does from the moment the person starts interacting with an element to the time the person starts interacting at the next element. Don't forget to keep taking notes as the target moves from one thing to the next because the visitor often says or does something related to the element or the experience.
9. Record any comments word for word that you overhear. No paraphrasing!!!!
10. After the tracking is completed, conduct the interview if family agrees. Then, clean-up" your form so that everything is completely legible. Embellish your notes with details that you abbreviated or now recall.
11. Check to make sure every item on the form has been completed.
12. Do not attempt too many observations during a designated time-period. It is better to have an accurate and legible completed form than several that are not ultimately usable.
13. Pay close attention to visitor behaviors that might contribute to future phases of the study.
14. Note your impressions BUT keep them separate from the facts of what you are observing.
15. Save all forms until the final report has been completed and approved.

Tracking form

Initials/ Family ID _____ Draft: P ___ F ___

POWER OF CHILDREN DATA COLLECTION REPORT FORM

INITIALS _____ DAY/ DATE: _____ FAMILY ID # _____

INTERPRETATION IN GALLERY DURING OBSERVATION: (Check all that apply)

None _____ Craft Activity _____ Facilitator _____ 1st person character _____ Interpreter (3rd person) _____

Other _____

Interpretation participation with family: yes / no (check all that apply)

None _____ Craft Activity _____ Facilitator _____ 1st person character _____ Interpreter (3rd person) _____

Family Guide: (took one) _____ (used one) _____ Other _____

CROWD LEVEL (ACCORDING TO OPERATIONAL DEFINITION) **:

Crowded: Approximately 70-80% of the exhibit elements tend to be occupied during the observation. There are examples of people waiting for an opportunity to observe more closely and/or to interact with the elements. The noise level as a function of visitor activity is high. Families *appear* to discontinue activity at an element as a function the crowded nature of the exhibit.

Moderate: Approximately 40-60% of the exhibit elements tend to be occupied during the observation. If an element is occupied, people can easily locate an unoccupied element. They can complete the activity or repeat it at their own pace. The noise level as a function of visitor activity allows visitors interact at normal conversational levels.

Few: Approximately 30% (or less) of the exhibit elements are occupied. The visitor has easy access to all elements. Typically, one to three families would be found in an exhibit AREA. The noise level as a function of visitor activity is minimal to imperceptible.

Crowded _____ Moderate _____ Few _____
 (Approx. +65-50 families) (Approx. 49-25 families) (Approx. 24 or fewer families)

APPROXIMATE FAMILY COUNT IN GALLERY DURING THIS SINGLE OBSERVATION: _____

Entry time: _____ Exit time: _____ Elapsed time (sec.): _____ Total time (min. and sec.) _____

Description of family members:

Race: _____ Economic Status: toward high ___ definitely middle ___ toward low ___

Other Distinctive Features:

 (Wheelchair, other disability, foreign?)

Family (mark the age of each family member, highlight/shade the “primary adult” and “primary child” if appropriate):

GENDER	20's	30's	40's	50's	60's	GRANDPARENT
FEMALE ADULT						
MALE ADULT						

GENDER	0-3	3-5	6-7	8-10	11-12	13-18
FEMALE CHILD						
MALE CHILD						

OTHER NOTES (ABOUT GALLERY, FAMILY DESCRIPTION)

133 total elements -- SAMPLE CODES

ENTRANCE	v. Waist Panel: "In hiding..." -Otto's voice/ Anne's satchel	RUBY	ooo. Ms. Henry Desk	llll. Wall Panel: Letters to President Obama	ggggg. Upper Display Case: "Ryan helped us believe..."
a. Entrance Panel-3 photos/Flat Screen	w. Upper Panel: "To go into hiding..."	ss. Ruby Cut-out	ppp. Blank blackboard	mmmm. Ruby Wall Quote	hhhhh. Waist Panel: Ryan's Funeral
b. Tree/Entry	x. Table objects	tt. Upper Panel: "Ruby's first year of school..."	qqq. 2 Desks with workbooks	RYAN	iiii. T.V. Camera-"The Power of WPWR"
ANNE	y. Side-board Objects	uu. Waist Panel: Slide- "Ruby's experience"	rrr. Lunch Box	nnnn. Ryan Cut-out	jjjjj. Wall text: "Ryan facing discrimination"
c. Waist Panel: "Why did Hitler"/Flip book	z. Wall Text: "The power of hope..." / Attic photo	vv. Policeman figure	sss. Storage Cabinet/Cabinet Doors	oooo. Upper Panel: "Ryan won and lost"	kkkkk. Design your own scrapbook
d. Display Case: "Can you find..."	aa. Wall Panel: "Anne longed..."	ww. Upper Panel: "Separate but unequal..."	ttt. Wall text (3 quotes)	pppp. Waist Panel: Slide-"Before and after AIDS"	lllll. Ryan Wall Quote
e. Display Case: "Teaching Hatred"	bb. Desk/ Photo's on wall	xx. Desks/Flip book	ABOUT RUBY	qqqq. Ryan's locker	mmmmm. Wall Panel: "We were there too..."
f. Waist Panel: "Jews aren't welcome" Signs	cc. Wall Panel: "August 4 betrayed..."	yy. Upper Panel: "What does 'colored' mean?"	uuu. Upper Panel: "Everything changed"/ Ask Ruby buttons	rrrr. Upper Panel: "A new disease"/ Video	nnnnn. Display Case: "The 80s brought..."
g. Display Case: "When the Nazis"	dd. Book case/Secret entrance	zz. Waist Panel: "Turn discrimination around..."	vvv. Upper Panel: "They made a difference..."	ssss. Waist Panel: "AIDS timeline"/ Flip book	ooooo. Upper Panel: "Helpers who made a difference"
h. Waist Panel: Star	ee. Wall Panel: "The Annex is..."-Annex map	aaa. Display Case: "There were laws..."	www. Upper Panel: "Congress took action..."	tttt. Full Panel: "I came face to face..." /Coke can	ppppp. Waist Panel: "Find out who helped"
i. Waist Panel: Slide- "Before and After Nazi's Invaded"	ff. Desk/ typewriter/blotter	bbb. "Meet Ruby's family..."	xxx. Waist Panel: Flip book- "Battle not over..."	uuuu. Full Panel: "In 1987 Ryan moved..."	qqqqq. Wall Text: "The power of your voice..."
j. "Meet Anne's family"	ABOUT ANNE	ccc. "In 1954..."	yyy. Wall Display: Foot Soldiers/ Flip books	vvvv. Display Case: Skateboard/Video	rrrrr. Display Case: "Ryan was born..." /Baby quilt
k. "Hitler promised"	gg. Display Case: "Life on America's home front..."	ddd. "I wanted a better life for Ruby"	zzz. Wall Display: Foot Soldiers/ Video	RYAN'S ROOM	sssss. Waist panel: Factor 8 vial
l. "Anne was born..."	hh. Display Case: "Otto was the only survivor..."	eee. Left Protest crowd/ Flip books	aaaa. Display Case: "Champions for change..."	wwww. Ryan's Room: (Glance/Wander)	ttttt. Display Case: Meet Ryan's family
m. Waist Panel: Family photo album	ii. Waist Panel: Video/Buttons	fff. Federal Marshall/ Armband	bbbb. Display Case: "1960's- They were turbulent times..."	xxxx. Performance	uuuu. Waist Panel: Ryan's family scrapbook
n. Column: "Next stop Amsterdam"	jj. Anne's Diary-Repro.	ggg. Right Protest crowd/ Flip books	ccc. Display Case: "A slow change..."	yyyy. Sound/light	TAKE ACTION
o. Postman figure/ Letter to Margot flip	kk. Suitcases/Video	hhh. Federal Marshall	dddd. Waist Panel: "How have schools changed?"	zzzz. Window/ Scrapbook/Desk Drawers	vvvvv. Puzzles: "Discover what you can do"
p. Waist Panel: "Margot must report..."	ll. Illa Hepner Tea set	RYBY'S CLASSROOM	eeee. Waist Panel: "How have restaurants changed?"	aaaaa. TV/ Posters	wwwww. Puzzle: Help a hungry family
q. Nazi's with dogs (cut-outs)	mm. Suitcases/ "The Butterfly"	iii. Ruby's Classroom: (Glance/Wander)	ffff. Upper Panel: "Helpers who made a difference"	bbbbb. Ryan's Bed/ Display Case	xxxxx. Puzzle: Help a sick child
SECRET ANNEX	nn. Upper Panel: "Helpers who made a difference"	jjj. Performance	gggg. Waist Panel: "Find out who helped"	ccccc. Display Case: Memorabilia	yyyyy. Video: POC Award Winners"
r. Secret Annex: (Glance/Wander)	oo. Waist Panel: "Find out who helped"	kkk. Sound/light	hhhh. "Be a change agent..."	dddd. Wall Panel: "When I turned 18"	zzzzz. Helping Tree
s. Performance	pp. Wall Book/Table to write	lll. Wall vent	iiii. Wall Panel: Rockwell painting	eeeee. Room section w/ drums	aaaaa. Computer Games: "Help others"
t. Sound/light	qq. Anne Frank photo mural	mmm. Coat rack/ waste basket	jjjj. Display Case- Ruby books	ABOUT RYAN	bbbbbb. Promise Computers
u. Upper Panel: "Where would we hide...?"	rr. Display Panel: "Anne Frank- Facing hatred"	nnn. Bulletin board	kkkk. Wall Panel: Mrs. Henry Award	fffff. Upper Display Case: "By Ryan's side..."	ccccc. Promise Post- It's

ELEMENT ORDER	V1	ELEMENT ORDER	V1	ELEMENT ORDER	V1	ELEMENT ORDER	V1
1		26		51		77	
2		27		52		78	
3		28		53		79	
4		29		54		80	
5		30		55		81	
6		31		56		82	
7		32		57		83	
8		33		58		84	
9		34		59		85	
10		35		60		86	
11		36		61		87	
12		37		62		88	
13		38		63		89	
14		39		64		90	
15		40		65		91	
16		41		67		92	
17		42		68		93	
18		43		69		94	
19		44		70		95	
20		45		71		96	
21		46		72		97	
22		47		73		98	
23		48		74		99	
24		49		75		100	
25		50		76		101	

Tracking Form Instructions

Detailed behaviors and quotes by element.

For each element:

- A. State name in bold
- B. Underline sub-heading on left
- C. Type number of min. /sec.
- D. Enter full sentence narratives focusing on:
 - 1) Observed physical behaviors;
 - 2) Corresponding learning actions;
 - 3) Interactions between parents, siblings.

****Include overheard comments verbatim.**

****Do not paraphrase!**

****Stay with the observation until it is fully ended and the transition is made to the next element.**

GUIDELINES FOR SEMI-STRUCTURED CONVERSATIONAL VISITOR INTERVIEWS

1. Approach the visitor with a smile and at a comfortable conversational distance.
2. Introduce yourself and briefly describe the purpose of the study. Make it clear you are examining the impact of the Museum (or program, or exhibit element, etc.) and are trying to understand it as best you can. Make it even clearer that you are *not testing or evaluating the visitor*. Explain that you need his or her help. Be honest.
3. Establish eye contact at appropriate levels of height. Adjust yourself to height of children, persons using wheelchairs or visitors who are already seated.
4. Inform the visitor that you would like his or her cooperation for a few minutes. It is important to assure the visitor that your interaction will be brief. Make a point of telling the person that you will be taking notes, especially to remind yourself of the points discussed. If applicable, remember to promise anonymity.
5. Casually move with the visitor away from the main flow of activity or traffic so that he or she does not feel too conspicuous. Also, you will probably need to do this to be able to hear what the visitor is telling you. Sometimes you may wish to take the visitor to a specific station or gallery element in the area so that he or she can comment on it directly.
6. Begin the interview by seeking the visitor's overall impression towards the focal point of the study. Allow the person to begin with a general statement. NEXT, *probe to uncover specifics based on what the respondent has just told you*. Attempt to elicit as much specific information as possible, all the while demonstrating that the visitor's view is both legitimate and valuable. You may need to assure the visitor that there are no "right" answers to your questions.
7. If you are interviewing visitors after you have observed them for at least a brief time, use your observation for contextual understanding as well as contend for probes during the interview itself.
8. Never correct a visitor. If any inaccuracies occur, simply record the statement(s) indicating the inaccuracy by a special notation.
9. If you are interviewing a pair or small group of visitors, try to ask something of each person. Record responses separately, noting the individual speaker.
10. Determine whether this is the first or a repeat visit for the respondent.
11. You can also ask the person if he or she would like to provide any other feedback that is not part of your protocol. This can relate to the focal point of the study or broader issues of the Museum experience.

**Always thank the visitor for his or her assistance!

REMEMBER....

- Willingness to answer questions varies from day to day from visitor to visitor. Some days will go better than others.
- The sample must be randomly selected although there may be a "quota" established before-hand that will guide age, gender, race, and ethnic respondents.
- There is always something that could have been done better. After each interview, think about what should be changed and how you will do it better next time. It takes practice to conduct a smooth and pleasant interview.

Visitor Interview: Sample Questions

1. If you were telling a friend about this exhibit, what would you say?
2. If you could do one or two things to make this {experience, exhibit, or element} easier to do or to understand, what would those things be?
3. While you were in this space, did you learn anything you did not know before? {Yes/No response- follow up with probe}
4. Was there anything in here that did not make sense to you? [Yes/No response-follow with a probe]
5. Were there any places where you wished the museum had given you some clues about what to do or maybe given you some information to answer questions?
6. We are trying to figure out which parts of this exhibit visitors like the most and the least. Which part did you like the most? What was fun about it?
7. This next question might be hard to answer, but which parts of the exhibit did you like the least? Can you say why that was? We really want to know!
8. [OR, try this version: What were the things in this exhibit that you did not care for very much?]
9. What messages do you think the museum hoped people who came to this exhibit would take away from it?
10. As an adult who is here with children, what would make the experience in this particular exhibit space better for you?
11. Can you think of anything that might make it easier for you to explain something to your child or answer their questions?
Has being in this exhibit caused you to think about anything differently? {POSSIBLE PROBES, depending on the answer}: Can you say what has changed? What part/s of the exhibit do you think caused that change? Can you explain a little more?
12. If you returned to this exhibit, what parts would you want to see or do again?
13. Is there anything else you would like to tell us about the exhibit or your reaction to it?
14. What parts of the exhibit would you say your children enjoyed the most? {Probe: Can you explain what it was that made it fun for them?} Ask child same core question and probe.

WRITING UP TRACKING and INTERVIEW NOTES

1. Useful observation is more than “people-watching.” Think of it as “empirical watching.”
2. Record preliminary notes knowing that you will, when finished with the observation, make them legible to any reader.
3. Embellish notes immediately after an interview.
4. Be systematic in recording notes and later transferring them in full form to an observation or interview report form.
5. Refrain from easing your standards even as you collect redundant data in the final stages.
6. Practice improving your memory for names, technical language and details. These skills will aid you in generating probes, note-taking and report writing.
7. Become sensitive to data that appears to be rumor, gossip or exaggeration. Separate these comments from verifiable data.
8. Review your notes continuously. Look for emerging relationships and list related probes
9. In your final write-up, be sure to identify those comments that are your impressions.
10. Present the data without distortion. Think of each write-up as a scientific, technical report.
11. On the report form, use complete sentences. Use language that is free from jargon and empty words and phrases such as: important, very, and adjectives or adverbs that are not supported with specific evidence.
12. Remember the purposes of the study so that the way the data are presented will speak to the issues and concerns of the evaluation audience.

A Crash Course in Using Statistics in Your Evaluation

The descriptive statistics below are the basic techniques of describing a particular set of data. Using methods that you probably already know, you can make evaluation data mean something. Note well: These methods do not allow you to generalize your data to other groups or situations, nor do they allow you to make inferences about the data.

Numerical Count or Frequency

- How many times something occurred or how many responses you had in a particular category.
 - Ten of the participants were over 15 years of age.
 - A total of 72 families responded to the survey.
- In general, always indicate the total number of cases as N (for the whole) or n (for a sample).

Percentages

- The information given as a proportion to the whole. Show relationships and frequency of answers.
 - 55% of the participants were over 15 years old.
 - 20% of the families were members.
- Use the correct denominator to calculate your percent! Usually this is the number of people who answered the question rather than the whole.
- All responses should equal 100. If you have multiple responses, you cannot add percentages.
- Do not add percentages and take an average. This does not give you an accurate answer

Mean

- The statistical mean helps to show the average answer across a set of data. It can also help to summarize numbers from a scale response.
 - Mean age of participants was 32 years
 - Mean rating of the program was 3.2 on a scale of 1 to 5.
- Add all the responses and divide by the total number of responses.
- For scaled items, multiply the number of answers by the scaled value; add all categories; divide by total number of answers.

Median

- Median is the exact midpoint of all the values in your data. Exactly half are above and exactly half are below.
 - Median household income was \$35,000.
- Calculate the mean by listing all responses in order, low to high. Count to the middle. If you have an even number of responses, add the two middle numbers and divide by 2.

Standard Deviation

- Standard deviation measures the distance any particular individual varies from the mean.
- High standard deviation means responses are very different from the mean; low standard deviation means responses are similar
- Generally calculated in statistical programs (it can be done by hand but is not common)

Helpful Definitions and Orientations to Statistics

Evaluation and research is about finding meaning and relationships. We use different techniques and methods to help us make meaning of data.

Statistics, or quantitative methods, consists of a broad set of techniques and approaches to make sense of data numerically. Qualitative methods on the other hand make sense of data using language.

We use the method that best answers the question and can best help us make meaning from the data we collect.

Statistics is a study of probability. It is used to describe and define relationships between variables. Because it is based in numeric representation, statistics often requires mathematical equations. Be aware that not all things in life can be represented by numbers. We can convert all kinds of things into a number, but unless we've spent time perfecting the measurement, a number used in this way is always an interpretation. On the other hand, things like time, distance, age, income, are measured in ways that do not vary and can be more reliable with statistics.

When you read evaluation reports that have statistics in them, the goal is for you to determine what meaning you can see in the numbers.

Sample: a portion of the whole group being studied. Sampling, then is a process you use to get a sample. Random samples are use a predetermined systematic process.

Population: the total of the group being studied. A population can refer to all of the people in a particular category, e.g. all visitors to the museum exhibit; all visitors to a museum; program participants.

N or n: The number of participants or respondents.

Variable: any factor that has an impact on a given situation. There are dependent (the 'x' variable) and independent variables (the 'y' variables). Dependent variables are the ones we study. Independent variables are the factors that impact or influence the dependent variable.

Significance: in order to make meaning and define relationships, we can determine how different or how similar values are. Significance is the degree to which something is or isn't meaningful. Something that is "statistically significant" has particular meaning and assumes that the correct procedures and methods have been used to produce the result.

p value: often expressed as $p =$; $p \leq$ The number following the p represents the percentage of chance that a value is related to chance, rather than the variables in the study. For example, a p value of .05 means that there is a 5% chance that the difference in the value is due to chance rather. In general the lower the p value, .01, .001, etc. indicates there is a very low probability that a difference in the value is due to chance.

Writing reports

Descriptive Information Available from Exhibit Tracking Forms

How you design a tracking/observation form in terms of what you include will dictate the type and extent of data you will be able to analyze. The items below are some examples of core information we are able to analyze to the common form we use for exhibit evaluation. There are many possible variations and combinations that can be created from these core items.

1. Total size of sample in the study
2. Family configurations of those visiting the exhibit
3. Number and percentage of repeat visitors in sample
4. Number and percentage of first-time visitors in sample
5. Number and percentage of museum members in sample
6. Number and percentage of non-members in sample
7. Visitation pattern of families in sample (frequency of visits over a time period)
8. Age distributions of children and adults in sample (can compare to museum attendance)
9. Gender distribution of children and adults in sample (can compare to museum attendance)
10. Pattern of gender and age distribution of children and adults compared to other exhibits
11. Average amount of time families in sample spend in exhibit (Elapsed time from Entry to Exit)
12. Range of time families spend in exhibits
13. Number of elements in exhibit
14. Name of each element in exhibit
15. Most visited elements by families in sample (percentage and ranking)
16. Range of time families spend at each element
17. For sample, average number of stops at elements in exhibit
18. Number and name of areas in exhibit
19. Number and name of each element in an exhibit area
20. Engagement time at areas (ranking of engagement time at most visited areas)
21. Number of family learning interactions of families in sample (for entire exhibit)
22. Type of family learning interactions in exhibit for families in sample (percentage)
23. Type of learning interactions evoked by individual elements
24. Family configuration and engagement patterns
25. Number of element choices for first ten stops
26. Family Participation in Interpretation experiences

Useful Resources

Key Reference Books and Articles

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United Way of America. (1999, April). *Achieving and measuring community outcomes: challenges, issues, some approaches*. Retrieved August 8, 2005, from http://national.unitedway.org/outcomes/resources/measuring_outcomes.cfm

United Way of America. (2005). *Achieving and measuring community outcomes: challenges, issues, some approaches*. Retrieved August 11, 2005, from http://www.liveunited.org/_cs_upload/Outcomes/Library/4158_1.pdf. **Organizations**

W.K. Kellogg Foundation. (2004, January). *Logic model development guide*. Retrieved August 10, 2005, from <http://www.wkkf.org/default.aspx?tabid=101&CID=281&CatID=281&ItemID=2813669&NID=20&LanguageID=0>

W.K. Kellogg Foundation. (2005). *Evaluation overview*. Retrieved August 12, 2005, from <http://www.wkkf.org/default.aspx?tabid=75&CID=281&NID=61&LanguageID=0>

Weil, S. (2003). Beyond Big & Awesome: Outcome-Based Evaluation. *Museum News* Nov-Dec.

Shettel, H. (2010). No visitor left behind. *Curator* 51(4), 367-375.

Young, J. (1997). *Program Evaluation: Background and Methods*. http://ed.fnal.gov/trc/program_docs/eval.html

Websites and Organizations

American Evaluation Association <http://www.eval.org/>

Association of Science and Technology Centers <http://www.astc.org/resource/visitors/index.htm>

Committee on Audience Research and Evaluation (CARE). <http://www.care-aam.org/>

Informal Science

<http://www.informalscience.org/>

United Way of America: Outcome Measurement Resource Network
<http://national.unitedway.org/outcomes/>

University of Wisconsin-Extension Cooperative. <http://www.uwex.edu/ces/pdande/index.html>

Visitor Studies Association.
<http://www.visitorstudies.org/>

Scenarios for Discussion

Family Guides

The museum director feels that family guides are a real compliment to the visit; the anecdotal evidence says that people do not use them. The museum is spending valuable resources including staff time, printing costs, design, and development to continue to implement the guides.

Your task: Determine a plan of action for whether to continue using the family guides.

Puppet Show Program

The programs department wants to deliver a puppet show in a new traveling exhibit using an existing script. The program would help augment the existing content of the exhibit. However, the program has, in the past, received mixed reviews from visitors. The goals and messages of the existing script do not quite match the goals and messages of the traveling exhibit. Implementing this program would mean additional staff hours and resources.

Your Task: Determine a plan of action for whether to use this program.

Planning for an New Exhibit

A donor would like to fund an exhibit on obesity. There is general interest among the visitors for some kind of exhibit on healthy activity. A number of community partners are willing to contribute their expertise on a wide range of topics including nutrition, dental health, sleep habits, household safety, and exercise.

Your Task: Determine a plan of action to decide whether to proceed on the exhibit.

<i>For all Scenarios</i>

How do you know what is working in this scenario?

What can you design to collect evidence?

What could the evidence tell you about your question?

Who would collect the data?

How would you analyze it?