



Designing good closed-ended surveys for evaluation

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Presentation Roadmap

- Common issues in quantitative survey design (feedback and impact)
- Importing bad methods from other domains
- How to improve quantitative survey design



Survey-based Evaluation – Current Approaches

- Feedback and Management Information

- Usually Measures:

- Satisfaction
- Comments on effectiveness (or not) of particular approaches

- *Common problem*: Post-visit or post-exhibit or uncontrolled self-selected self-completion forms

- Impact Evaluation

Common problems:

- Relying on post-visit only self-report; other-report

Audience Feedback

- Can be very useful in providing pointers and identifying **possible** directions for developing exhibits.
- To make any quantitative generalisations, should be **representative** of audience population.

Measurement

- A key issue is what will be captured on a particular measure (i.e. ‘what counts?’)
- Measurement error is an issue. (i.e. error due to measurement approach/tool)
- Where feasible, important to directly measure relevant variables such as knowledge, e.g. before/after

Survey Design for Evaluation – Common Problems



Current Problems

- ‘Industry standard’ survey design often rife with basic errors and poor practice in survey design, sampling and analysis.
- Many institutions are uncritical consumers (and producers) of survey-based evaluation research, quick to believe measuring complex outcomes is simple.



Common problems – gathering feedback

Teacher Feedback Forms

What can we validly get from teachers?

- Their opinions/satisfaction on a range of topics, for example:
 - ✓ The service they have received.
 - ✓ The education provision on offer and how/if they used it.
 - ✓ Comparisons with competing organisations.
 - ✓ Their professional opinion on any improvements to education provision.

Some 'good' teacher comments:

“The Applied Science sessions were spot on. Did you know the AQA Applied Science course is changing for 2012?”

“Frustrated by website. I tried to book online but could not book a group of 18 students and 2 staff. I found it hard to find the information that used to be really obvious.”

“I have been on 6 other occasions so I knew what to expect, but the standard was good and very relevant.”

Headline:

**We can never use teacher
opinion as a proxy
indicator of student impact
(*same goes for parents!*)**



Some teacher comments from a zoo evaluation that cannot be taken as statements of fact:

“The kids loved it, and they didn't really think about how much they were learning as they looked around.”

“The cherry on top was when he brought out the snake - the kids loved it and they learnt an exceptional amount of information for a one hour session.”

These are still the perceptions of the teacher, not measures of impact on the learners involved.



Some teacher comments from a zoo evaluation that cannot be taken as statements of fact:

“Very enjoyable day for all. Children were very enthusiastic and gained a lot from the experience.”

“I think it's 100% educational as the Zoo is so involved with highlighting the importance of preserving ecosystems (even the cafes); also watching animals invariably increases understanding of them.”

These are still the perceptions of the teacher, not measures of impact on the learners involved.



Some further examples of ‘bad’ use of teacher comments (from Ecsite-UK report on impact of science and discovery centres):

“The children have come back full of all they have learnt”
Year 3/4 teacher from Selby (Ecsite-UK report)

Case Study: W5, Belfast

At W5 in Belfast, qualitative evaluation with teachers showed:

- **Good:** 82% said it *provided opportunities that were not available at school.*
- **Somewhat bad:** 82% felt that the pupils’ experience at W5 had *made the science curriculum more relevant.*

These are still the perceptions of the teacher, not measures of impact on the learners involved.



Some further examples of 'bad' use of teacher comments (from Ecsite-UK report on impact of science and discovery centres):

- **Bad:** 85% said it *made the science curriculum more enjoyable,*
- **Bad:** 79% said it *increased knowledge and understanding*
- **Ugly!:** In the case of W5, this evidence suggests strongly that it is *directly addressing factors that lie behind the decline in the take up of STEM subjects in schools.*

These are still the perceptions of the teacher, not measures of impact on the learners involved.



Some 'bad' use of teacher comments (from an MLA museums report)

Section titled 'Powerful learning outcomes for pupils':

- 'Teachers continue to value the inspirational quality of museum work because *it enables their pupils to better understand their subject*'
- '99% of teachers think their *pupils enjoyed the museum experience*'
- '97% of teachers think their *pupils are likely to have been inspired to learn more*'
- '94% of teachers think their *pupils will have gained subject-related facts*'
- '94% of teachers think their *pupils are likely to have developed thinking skills and (89%) communication skills*'

([Greenhill, et al., 2007, p. 28](#))

These are still the perceptions of the teacher, not measures of impact on the learners involved.



To sum up:

...there's no problem with reporting teacher opinion as opinion.

For example:

“Teachers believed that the the visit was a valuable learning experience”.

but important to avoid temptation to confuse opinion with actual impacts on learners...

Teacher Feedback Forms: Good, Bad and Ugly

Examples courtesy of Andy Moss, Chester Zoo

Question Design:

Not:

“How do you think your visit to the zoo benefitted your students?”

Try:

“Did the session you attended link with the part of the curriculum you teach in school?”

Stick to getting teacher feedback in areas of expertise – much more useful and valid.

Common problems – Impact evaluation

Impact Evaluation – Common problems

- Want to know whether a child has learned a lot about science after her day at the science museum?

Easy! Just ask her:

- ‘Did you learn during your visit to the science museum today?’: Yes or No?.



Science Communication Evaluation – Current Approaches

London's Science Museum's internal guidance for evaluation includes the following flawed survey item:

'To what extent do you agree or disagree with the following statements?' (strongly agree to strongly disagree):

'I have learnt something new today' (National Museum of Science & Industry, 2009).



Evaluation – Current Approaches

Other common problems in evaluation surveys include:

- Skewed response options (e.g. all positive)
- No ‘don’t know’, ‘neutral’ or ‘no opinion’ option
- ‘Other report’ requested (e.g. teacher for students)



Importing bad survey design from marketing



Would you recommend this workshop to a friend or colleague?



1. Give a numerical score for the workshop (no discussion!)
1. Write down a short description of what you mean by this score indicates about your views on this workshop.
2. Share your description with the group



81%

Net Promoter Score

81% of visitors would recommend
us to friends and family

Net promoter score



Primary concerns about this:

- **Validity** (are you measuring what you are really interested in?)
- **Reliability** (are you gathering data in a consistent way?)

Net promoter score

The NPS Calculation

Calculate your Net Promoter Scores using the answer to a single question, using a 0-10 scale: How likely is it that you would recommend [brand] to a friend or colleague? This is called the Net Promoter Score question or the recommend question.

Respondents are grouped as follows:

- *Promoters* (score 9-10) are loyal enthusiasts who will keep buying and refer others, fueling growth
- *Passives* (score 7-8) are satisfied but unenthusiastic customers who are vulnerable to competitive offerings.
- *Detractors* (score 0-6) are unhappy customers who can damage your brand and impede growth through negative word-of-mouth.

Missing 'don't know'/no opinion option--



No way of reliably knowing where the promoter/detractor line really is given points on scale are unlabeled

Importing bad survey design from published scientific research



Conservation Biology



Conservation Practice and Policy

Knowledge Gain and Behavioral Change in Citizen-Science Programs

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<i>Question</i>	<i>Mean pretest (n = 82)</i>	<i>Mean follow-up (n = 33)</i>
To what extent are you knowledgeable about environmental science?	2.29	2.66

Response options:

- 1 - a lot;
- 2 - a fair amount;
- 3 - only a little;
- 4 - nothing;



What is wrong with this?

To what extent are you knowledgeable about the research and regulatory infrastructure as they relate to environmental issues?

3.54

3.39

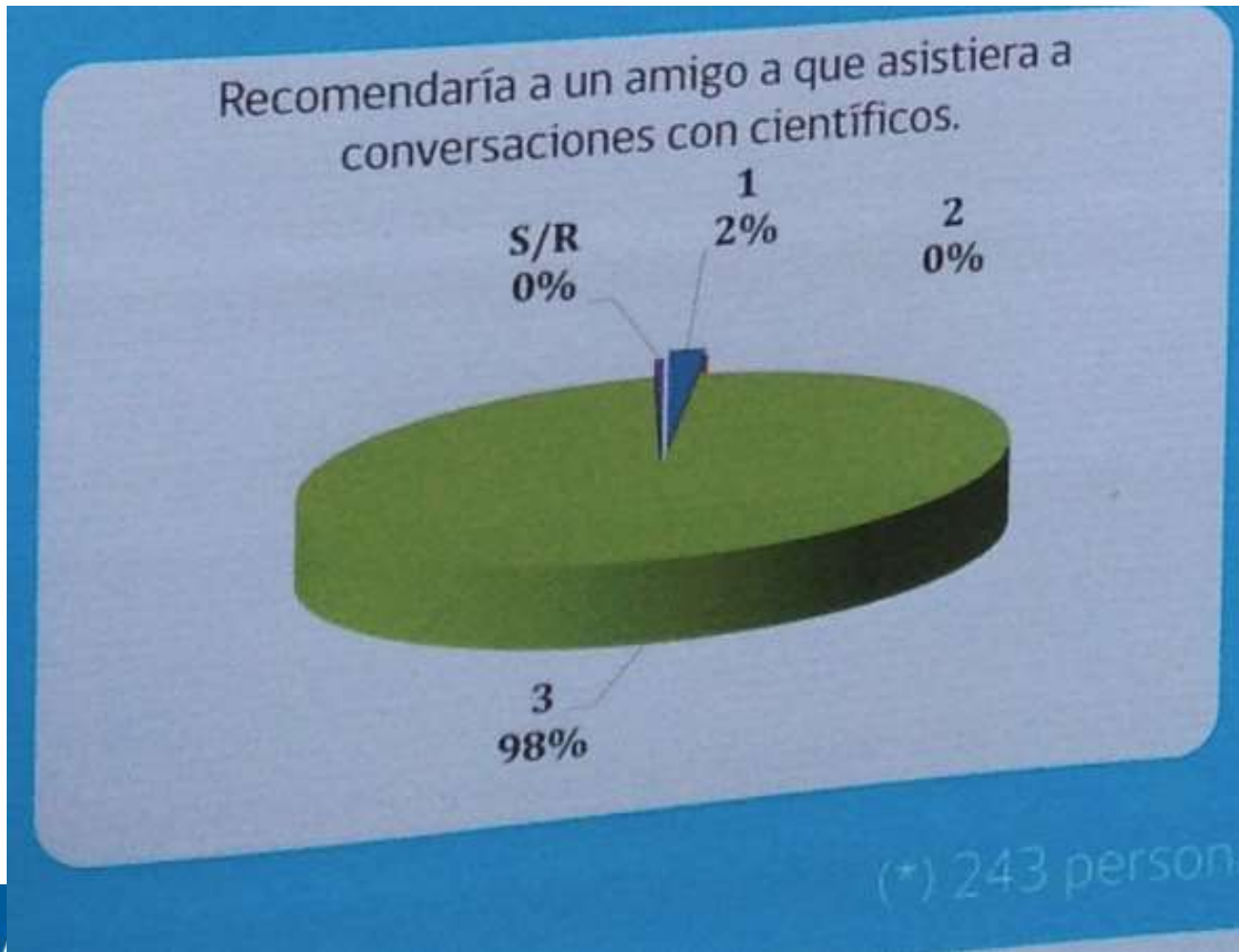
Response options:

- 1 - great extent;
- 2 - considerable extent;
- 3 - moderate extent;
- 4 - slight extent;
- 5 - no extent.

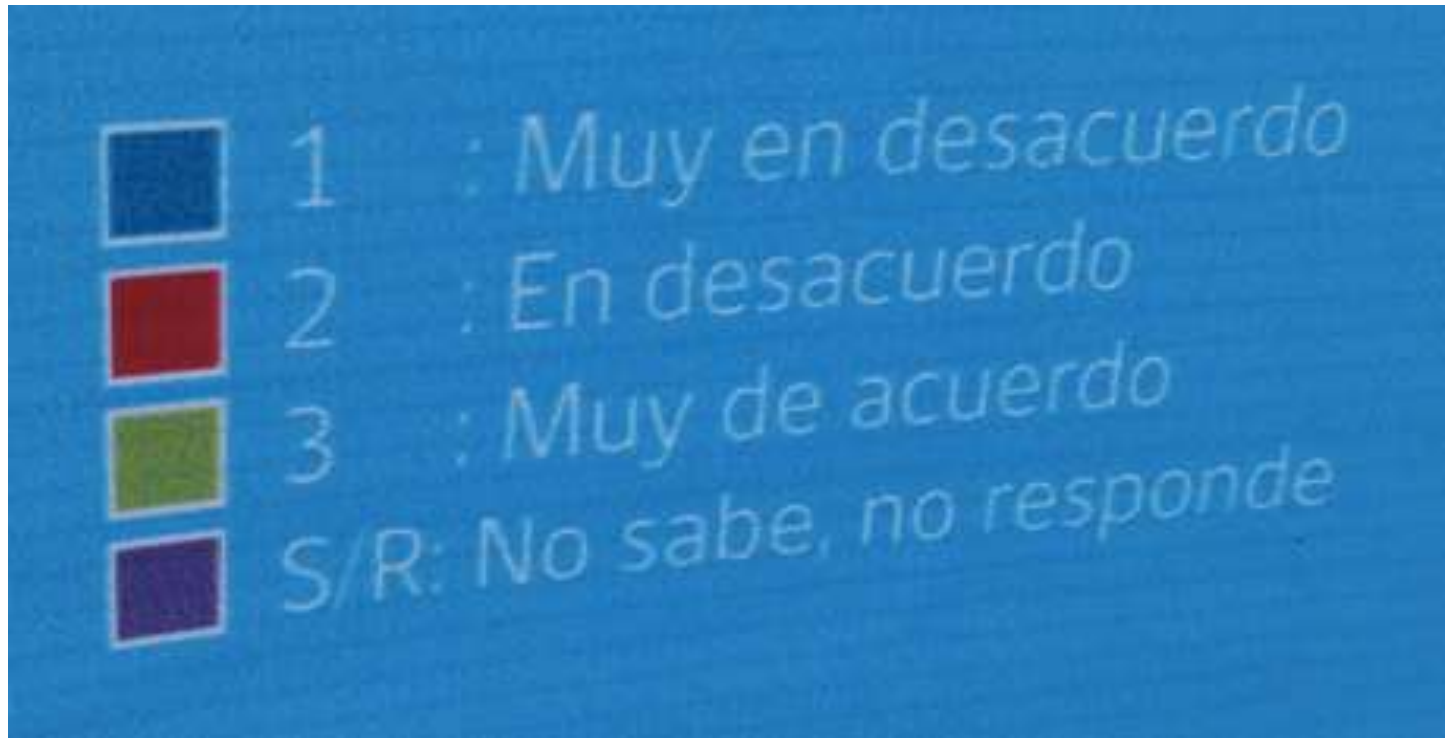


What is wrong with this?

Hay problemas en todo del mundo *(un ejemplo de Chile)*



Hay problemas en todo del mundo *(un ejemplo de Chile)*



Quiz time!

Survey question examples: Test Time!

Q1. Do you like museums or zoos?

Yes / No

Q2. What will be the one thing you remember from your museum visit in 3 months time?

Q3. How much would you say that you know about modern art?

a) nothing at all b) a little c) a moderate amount d) a great deal

Q4. Are you aware of London Zoo's conservation work, both in the zoo and in the wild?

Yes / No

Survey question examples:

Level of agreement items to evaluate museum impacts

Q5. “I could make sense of most of the things we saw and did”

Q6. “Using the museum was a good chance to learn in new ways I had not considered before”

Q7. “I discovered some interesting things”

Q8. “I feel I have a better understanding of the subject”

DIY Survey Design:

In small groups, propose three outcome items for evaluating this workshop



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