

Son of Transformer

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THIS IS NOT A DEFINITIVE FINAL REPORT

FORMATIVE evaluation studies like this one often:

- **are conducted quickly**, which may mean
 - small sample sizes
 - expedited analyses
 - brief reports

- **look at an earlier version** of the exhibit/program, which may mean
 - a focus on problems and solutions, rather than successes
 - a change in form or title of the final exhibit/program

Son of Transformer Exhibit Evaluation of Exhibit and Title Change

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1. Context of Study

This study investigates visitor interest in and understanding of the Son of Transformer exhibit. The main question of the study is what happens to interest and understanding when the title is changed (and improved)?

The Son of Transformer exhibit is a long-standing exhibit, and is being improved as part of the Matter/World area in the CPE floor improvement project. The Matter/World team suspected that the title of exhibit is uninteresting and unhelpful in understanding the phenomenon of the exhibit.

2. Goals of the Evaluation

The goal of the study is to determine whether visitors' interest in and understanding of the exhibit might be increased by changing the title to one which the team feels is more appropriate and helpful.

This study is part of a larger effort by the Matter/World group to improve several sections in the museum. Electricity and Magnetism is the first section on which the group is focusing its attention. After finding several exhibit titles wanting, the Matter/World team decided that a study was necessary to determine if changing an exhibit title is worthwhile. The team members chose the Son of Transformer exhibit because they felt that its title was particularly unhelpful and uninteresting.

3. Methods for evaluation

The methods for this evaluation focus on using two different titles in the exhibit label and then implementing two types of data collection. The two labels used in the study are:

- (a) Son of Transformer
- (b) Communicating Coils

In the first type of data collection, we interview visitors and in the second type, we observe visitor behavior. Interviewing visitors allows us to gauge their understanding of the exhibit and their self-reported interest in it. By observing visitors as they use the different exhibits in the section, we gain information about the impact of the label title on the attracting power of the exhibit.

Visitor Interview Method

The interviews were conducted over a period of one month, from 12/19/98 through 1/16/99.

Twenty-eight visitors were interviewed, 16 women and 12 men.

Visitors were chosen at random as they walked across the footbridge from section 8 to 9 on the mezzanine level. To select the title randomly, we employed the following procedure:

- (1) Randomly choose a title by flipping a coin.
- (2) Fix title to exhibit.
- (3) Randomly choose next visitor to cross footbridge.
- (4) Conduct interview.
- (5) Fix other title to exhibit.
- (6) Randomly choose next visitor to cross footbridge.
- (7) Conduct interview.
- (8) Begin again at step (1).

The interview questions are provided in the Findings section.

Observation Method

In order to determine the differential attracting power of the label titles, we videotaped visitors as they moved through a small section of the museum that included the Son of Transformer / Communicating Coils exhibit.

Ten videotaping sessions of 10 minutes each were held between 12/29/98 and 1/16/99, collecting a total of 100 minutes of video data. Five 10-minute sessions were held with each label title. We employed the following procedure:

- (1) Randomly choose a title by flipping a coin.
- (2) Fix title to exhibit.
- (3) Videotape for ten minutes.
- (4) Fix other title to exhibit.
- (5) Videotape for ten minutes.
- (6) Begin again at step (1).

To analyze the data, we stopped the videotape at 30-second intervals and counted the number of visitors at the exhibit and the number of visitors on the screen who were not at the exhibit. We compared these numbers for the two titles to determine the differential effect of the title on the attracting power of the exhibit.

4. Findings

Summary of Results

- There were no significant differences in visitors' self-reported interest in the exhibit nor in their understanding of the exhibit's phenomenon when the two different label titles are employed.
- There were no significant differences in the number of visitors observed to use the exhibit when the two different label titles are employed.

Interview Questions and Results

1. It's this exhibit over here. Before you look at it closely, could you tell me just at first glance, how interesting does the exhibit seem to you?

Title	Uninteresting	Somewhat uninteresting	Neutral	Somewhat interesting	Interesting
Son of Tran	1	1	4	6	2
Comm. Coil	0	2	5	6	1

Title	N	Mean
Son of Transformer	14	3.5
Communicating Coils	14	3.4

2. Can you say what it is about this exhibit that makes it (un)interesting?

Why not Interesting:	Son of Transformer	Communicating Coils
Looks boring / dull / simple / old.	2	3
Too small / doesn't attract attention.	2	3
Can't tell what will happen.	1	1
Requires a lot of reading.	1	0

Why Interesting:	Son of Transformer	Communicating Coils
I like the sign / title / diagram.	1	4
Machinery / coils / copper.	2	4
Like electricity / magnetism.	4	0
I know what to do / something will happen	1	3
Don't know what's interesting.	2	0

Now, if I could ask you to spend a few minutes playing with the exhibit, reading about it, whatever, so that you get a bit familiar with it. Then when you're ready, I'd like to talk with you about it.
[leave them alone with the exhibit]

[Give "This is not a test of you..." speech.] To start, I'd like to ask you about the different parts of the exhibit, so we can find out if it's clear what each part does.

3. [Point to push-button] What do you think this does?

	Son of Transformer	Communicating Coils
Switch causes light to go on / exh work	5	4
Switch conducts electricity	2	5
Switch closes circuit	3	3
Switch sends electricity to coil	4	2

4. [Point to wire bundles] What do you think these do?

	Son of Transformer	Communicating Coils
Creates magnetic field.	9	2
Conducts electricity to bulb (no mention of B-field).	2	7
Complete circuit / sends signal without touching	4	2
Steps up / down voltage / current	1	3
Transforms electricity.	1	0
Generates electricity.	0	1
I don't know.	0	1
Wiring for light / just part of the circuit	1	0

OK, now I'd like to ask you about the exhibit as a whole. [Push the button repeatedly.]

5a. How do these parts all work together? What do you think is happening here? [follow up with probes – How does the bulb turn on if these coils aren't connected?]

	Son of Transformer	Communicating Coils
Switch → I → B → Light	4	6
Create electricity / I flows	3	3
Switch → I → B	1	1
Switch → I → B → Hinge → Light	0	1
Switch → I → Coils → Light	2	0
Switch → I → something → Light	1	0
Step up / down current / voltage	0	1
Electricity flows between coils	1	0
It's transmitting something.	1	0
I don't know.	0	3

5b. Now that you've had some time to play with the exhibit, how interesting would you say it is?

Title	Uninteresting	Somewhat uninteresting	Neutral	Somewhat interesting	Interesting
Son of Tran	0	2	1	7	4
Comm. Coil	0	0	3	5	6

Title	N	Mean	Pre/Post change
Son of Transformer	14	3.9	+0.43
Communicating Coils	14	4.2	+0.79

6. Can you say what it is about this exhibit that makes it (un)interesting?

Why not Interesting:	Son of Transformer	Communicating Coils
I didn't learn much / understand.	2	1
Want to know how it applies to life.	2	0
Want something more dramatic than a bulb going on & off.	1	0
Looks boring / dull / simple / old.	0	1
Don't know why it's not interesting.	0	1

Why Interesting:	Son of Transformer	Communicating Coils
Fun to play with / hands on.	4	3
Now I understand how it works.	4	2
I like to see how physics applies to life.	2	0
The push & release to get light.	0	2
Lights up, but not connected.	1	1
Machinery / coils / copper.	0	1
Like electricity / magnetism.	0	1
Magnetic field is interesting.	0	1
The way it works.	0	1
Easy to get it to work.	0	1

7. Do you have any special interest, knowledge or training in the areas of electricity and magnetism?

Title	Yes	No
Son of Transformer	7	7
Communicating Coils	3	11

8. Is this your first visit to the Exploratorium?

Title	Yes	No
Son of Transformer	3	11
Communicating Coils	6	8

The interview data indicate that there is almost no impact of the title on visitors' understanding and interest level.

Observation Results

We counted the number of individuals at the exhibit and in the surrounding area. This yielded the following table:

Title	At Exhibit	Not at Exhibit
Son of Transformer	35 (9%)	341
Communicating Coils	42 (9%)	408

From these data, it seems that changing the title had no impact on the attracting power of the exhibit.

5. Recommendations

Changing the title from Son of Transformer to Communicating Coils did not seem to have an effect either on visitors' interest in or understanding of the exhibit.

We recommend that title changes be given a low priority.