

# Supplemental Material to Co-creating Visualizations: A First Evaluation with Social Science Researchers

## 1. Participant Survey

Thank you for taking part in our survey! Your data will be saved anonymously. At no time will your name or any other identification will be used or disclosed.

1. What is your age?

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2. What is your gender?

- Female
- Male
- Other

3. What is the highest degree you have received?

- High school degree
- Bachelor degree
- Master degree
- PhD degree

4. Which of the following best describes the field in which you received your highest degree?

- Sociology
- Political Science
- Geography
- Computer Science
- Other (please specify)

5. How often do you use visualizations at work?

- Never
- Rarely
- Sometimes
- Usually
- Always

6. What is your main goal while using visualizations at work?  
(More than one possible)

- Explore
- Search
- Analyze
- Compare
- Present
- Other (please specify)

7. What type of data do you work with? (More than one possible)

- Tables
- Text
- Time series
- Networks or trees
- Clusters, sets
- Geometries (e.g. 3D)
- Other (please specify)

8. Who is the most relevant audience of your visualizations? (More than one possible)

- Yourself only
- Students
- Your project members
- Colleagues of your field
- General public
- Other (please specify)

9. Do you have any other comments, questions, or concerns?

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## 1. Co-creation Survey

As part of the formative evaluation of our co-creation process, we ask you to please fill this questionnaire regarding the process focused on data visualization (the organization, the survey, and the 2 workshops). The more you tell us, the more informative this will be for our work.

### 1.1. Rating the co-creation process

Which workshops have you attended? Please choose all that apply:

- Workshop 1 (<date anonymized>)  
 Workshop 2 (<date anonymized>)

Did anything make it difficult for you or others to attend or take part in the workshops? If yes, what would make it easier? Please write your answer here:

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Please indicate your immediate response for each of the following statements. Don't think too long about each statement. Please choose the appropriate response for each item:

*S1. The expectations and aims of the co-creation process have been clearly explained to me.*

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

*S2. My role in the process is clear to me.*

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

*S3. The workshops have been useful to me.*

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

*S4. I feel listened to.*

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

*S5. I feel that my suggestions have been taken into account.*

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

*S6. I feel that every participant has been given an equal chance to be part of the decision making process.*

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

*S7. It is clear how the decisions about the visualizations have been made so far.*

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

*S8. I think the co-creation process will help to develop visualizations that assist me in conducting research on the <topic of project anonymized>.*

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

### 1.2. Please tell us more about your experience

To what extent do you feel you have influenced the outcome of the process so far? Please write your answer here:

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What have you learned from being involved in the process? Please write your answer here:

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### 1.3. Please tell us more about the workshops

Which activities did you find most useful? Please write your answer here:

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How could the workshops be improved? Please write your answer here:

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### 1.4. Demographics

Please indicate your gender. Please choose only one of the following:

- Male  
 Female  
 Other

Please indicate your role in the project. Please choose only one of the following:

- Doctoral candidate  
 Postdoc  
 PI  
 Other

# Supplemental Material to Co-creating Visualizations: A First Evaluation with Social Science Researchers

We present the user study for the summative evaluation of our co-creation process. It consists of a series of tasks, a questionnaire and a semi-structured interview.

## 1. Tasks

Welcome to the next iteration of testing (<system name anonymized>). This session is pretty straightforward — we'll be giving you four short tasks to complete. Each task asks you to interact with a particular feature of the system, and includes a few questions about the data saved in (<system name anonymized>).

After finishing the tasks, we'll ask you to fill a questionnaire about the visualizations and the co-creation process that has led to this state of the system. We'll then proceed to a short interview.

The goal of this test is to learn from your experience with the system, and to receive feedback about the co-creation process you have participated in.

Below you will be presented with the tasks and the questionnaire. Completing them should take approximately 40 minutes. Then we'll proceed to the interview, which should take approximately 20 minutes.

You will perform 4 tasks corresponding to the visual features that we want to test:

1. Missing data overview
2. Browse by Indicator
3. Browse by Country
4. Data Explorer

### 1.1. Missing data overview

To be able to use all the system functionalities, first, you need to sign up.

1. Access (<system name anonymized>), if it is not already opened in your browser
2. Create a user account
3. Log into your account
4. Go to the Browse by Topic page

Based on the content of this page, please answer the following question:

*Q1. For which years does (<system name anonymized>) have values for the indicator "Private expenditure in health"?*

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### 1.2. Browse by Indicator

Now we want you to find specific indicators.

1. If you aren't there already, go to the Browse by Topic page
2. Look for the indicator "Enrollment rate in primary education" according to the topic it belongs to.

Please answer the following questions:

*Q2. What's the enrollment rate of Canada in 1985?*

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*Q3. How did the enrollment rate for the United States change over time since 1880? Please give a short description.*

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*Q4. How was the distribution of the rate values in North America in the 90s? Please give a short description.*

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### 1.3. Browse by Indicator

We want you to check the country profiles of (<system name anonymized>).

1. Go to the option "Browse by Country"
2. Go to the country profile of Germany (either through the list or the map)

Please answer the following questions:

*Q5. What percentage of the total expenditure on health did the government invest in 2004?*

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### 1.4. Data Explorer

Now we would like to explore the relationship between multiple indicators.

1. Go to the option "Data Explorer"

2. Load the data for the indicators “Private expenditure on primary education / GDP” and “Public expenditure on primary education / GDP” for the United States and Canada between 1945 and 2010.

Please answer the following questions:

Q6. Which patterns do you see for each country?

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## 2. Questionnaire

As part of the evaluation of our co-creation process on designing visualizations for (<system name anonymized>), we would like you to answer the following questions based on your experience in the co-creation process and the visualizations you interacted with during the tasks.

### 2.1. About the workshops

Which workshops have you attended? Please choose all that apply:

- Workshop 1 (<date anonymized>)
- Workshop 2 (<date anonymized>)
- Workshop 3 (<date anonymized>)

2. How inclusive and open do you think the workshops were?

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3. What did you think about the length of the workshops?

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### 2.2. About the visualizations

Please indicate your immediate response for each of the following statements about the visualizations. Don’t think too long about each statement. Please choose the appropriate response for each item:

V1. The visualizations are easy to use.

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

V2. The visualizations are useful to me.

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

V3. I would like to use the visualizations frequently.

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

V4. I would imagine that most researchers would learn to use this system very quickly.

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

What did you like most about the visualizations?

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What did you like least about the visualizations?

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What did you miss in the visualizations?

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### 2.3. About the co-creation process

Please indicate your immediate response for each of the following statements. Don’t think too long about each statement. Please choose the appropriate response for each item:

S1. The expectations and aims of the co-creation process have been clearly explained to me.

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

S2. My role in the process is clear to me.

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

S3. The workshops have been useful to me.

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

S4. I feel listened to.

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

S5. The workshops have been useful to design the visualizations.

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

S6. My participation has helped to shape the visualizations.

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

S7. It is clear how the decisions about the visualizations have been made so far.

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

S8. I think the co-creation process will help to develop visualizations that assist me in conducting research on the <topic of project anonymized>.

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

S9. I would take part in another co-creation project in the future.

Strongly disagree [1] [2] [3] [4] [5] Strongly agree

## **2.4. Demographics**

Please indicate your gender. Please choose only one of the following:

- Male
- Female
- Other

Please indicate your role in the project. Please choose only one of the following:

- Doctoral candidate
- Postdoc
- PI
- Other

## **3. Guiding questions for the interview**

### **3.1. About the co-creation process**

1. What in your opinion is your role in the co-creation process?
2. To what extent do you feel you have influenced the outcome of the project so far?
3. What did you like most from the co-creation process?
4. What did you like least from the co-creation process?
5. What kind of challenges do you see with participating in the early stages of the design process?
6. What have you learned from being involved in the process?

### **3.2. About the visualizations**

1. What do you think about the visualizations?
2. What did you like?
3. What could be improved?
4. What would you like to see in the future?