

Intro (10 min)

Welcome, and thank you for participating in our user study.

We're a research team at [REDACTED] looking into new ways to help people create data-driven stories that incorporate charts and text. Before we jump in, here's a quick look at the background and what's driving this project.

Visual data storytelling is essential in fields like data journalism or any form of data reporting, but creating these visual stories is very challenging – it involves creating visualization and writing data-driven narratives. Even with advanced tools, writing data-driven narratives is time-consuming and error-prone, requiring manual data transcription. While natural language interfaces have made data interaction easier, the process often starts with data analysis, discouraging text-first creators. Our goal is to create an integrated authoring tool that combines data, visuals, and narrative writing in one place, making the process more fluid and efficient.

So, we developed DataWeaver to help streamline the creation of visual data stories by integrating visualization and narrative generation. We're here to gather your feedback on how effective it is and how we can improve these kinds of tools. Your task is to put yourself in the shoes of a visual data story author, composing both visualizations and narratives for a data-driven article to share the findings with your audience. Keep in mind that the primary focus is not on data analysis.

We'll begin with a brief video demonstrating DataWeaver's features, after which you'll engage in a couple of tasks using the prototype. During these tasks, we'd like you to think aloud and share your thoughts. At the end of the session, we'll ask you to complete a short survey and participate in a brief interview to gather your insights.

Do you have any questions?

<permission to video record>

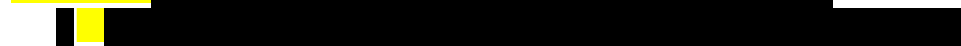
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Given that DataWeaver offers a wide range of features, we would like you to focus on assessing the core functionalities and the overall workflow it supports.

Task A: Reproduction Walk-through(15 min)

In this task, you'll be using the Gapminder dataset to reproduce a visual data story similar to what was shown in the introductory video. The Gapminder dataset is a rich collection of global data that tracks indicators like life expectancy, GDP per capita, and so on., We will provide specific instructions for each step. Please ask any questions.

1. Open DataWeaver in Chrome and select the "Gapminder" dataset. This will load three preconfigured visualizations along with a text editor.
2. Now zooming into the first chart (the scatterplot), the x and y axes represent the life expectancy and GDP per capita for all the countries, and the colors represent their continent. You can hover over each data point to see the detailed information.
3. Now you can either click on the data points or brush over an interesting area in the scatter plot.
4. Next, take a look at the insight cart on the right sidebar. DataWeaver calculates some stats and data facts based on your selection of the data. Now you can click the cells in the stats table or the checkboxes of the data facts. You can also use group selection to select all the data facts within each category.
5. Now click on the text editor and start a new paragraph. Now you will use the selected data facts to generate narratives. First, you press the tab key on your keyboard. Wait for GPT to respond. The suggested text will be shown below. You can press it again to accept it or press backspace to reject the suggestion.
6. Now that you have learned how to generate data narratives using chart interactions and data facts, I want you to proceed to the other two charts. In the second one, you can click on different bars that you want to highlight. In the third one, you can brush over the timeframe that you want to focus on.
7. Then spend some time reviewing the data facts in the insight cart and select the data facts that you want to put in the narratives. You can use the high-level checkboxes to select all within a group.
8. Use the "tab" key to generate a couple of more paragraphs.
9. Now let's try to create some vis using the text. Please select a sentence that you want to expand on. Then click the "Recommend Relevant Visualizations" button right below the text box, the one to the right. Now wait for some time.
10. Now DataWeaver creates some charts that are relevant to your selected narratives. You can click the add button next to the chart to add it to the canvas.
11. You may choose to repeat a new round of generation. But for now, you can click the "Review Data Story" button in the upper right corner.
12. You can reorder the story by dragging the text blocks around.
13. You can also review the different outputs that you can share with your audiences for review.

<keep track of time, cut off at 15 mins>

Task B: Open Authoring Exercise (15-20 min)

In this task, we will ask you to use the **Movie** examples to author a visual data story. We provide two options using the same datasets and leading texts. In the first one, we created some charts for you to jumpstart the authoring process. In the second one, you will start from pure text that connects to the same datasets in table forms.

Again, please focus on the core features you used in the first exercise. So please do not spend your time authoring new visualizations or adjusting the text content it generates. We would like you to pay attention to the data facts, the generated narratives, the recommended charts, the overall authoring experience, and the final story.

1. Time allocation: We ask that you spend 15-20 minutes creating a complete visual data story.
2. Think aloud: As you work, please think aloud, sharing your thoughts and decision-making process.

Remember that we ask you to think aloud while you are completing the task. We especially want you to talk about your intentions to highlight visual elements or select data facts.

<keep track of time, cut off at 20 mins>

Post-Study Questionnaire (5 min)

Thank you for completing the tasks! Next, we'll have you fill out a short survey to provide feedback on your experience. You can also verbally provide feedback regarding each question. After that, we'll conduct a brief interview to discuss your thoughts in more detail.

<<https://forms.gle/S2dVFPKPuvTKdbH46>>

Debrief (10 min)

Lastly, we just wanted to take the opportunity to ask you a couple of more general questions about using DataWeaver

1. In general, how do you feel about the experience of using DataWeaver to compose a visual data story?
 2. Were there aspects of DataWeaver that you found challenging to use?
 3. Which features of DataWeaver did you find most useful?
 4. Do you have any suggestions for improving DataWeaver?
 5. Are there any additional features you would like to see supported in DataWeaver?
 - a. Vis-to-text generation
 - b. Text-to-vis generation
 6. **The text generated by DataWeaver mainly describes data facts. What other types of data-driven content would you include in the story?**
 7. **DataWeaver explored the possibility of recommending relevant visualization to help users jumpstart the authoring, what other features do you think would be helpful?**
 8. How do you feel about reviewing and sharing the final story with your viewers? Imagine embedding the final story on your own web page.
 9. Is there anything else you would like to share about your experience using DataWeaver?
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This was great. Thank you for your time.

1. Do you have any questions for us?

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Post session

- ☐ Wait for the transcript to arrive, and do a cleaning pass.

