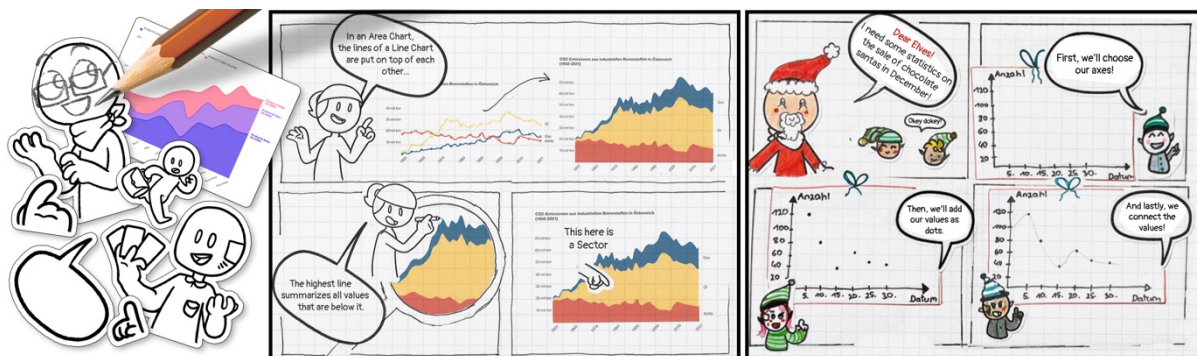


COMICS TO LEARN AND EXPLAIN DATA VISUALIZATIONS

A workshop to deepen understanding of various chart types through a 'learning-by-teaching' approach, by creating explanatory comics.

Time:	Participants:	Facilitators:	Goal:	Easiness facilitator:	Cost:
100+min	3-30	1 to 2	Understand specific Chart Type	*****	*****



This activity engages participants in creating explanatory comics to deepen their understanding of various data visualization techniques. The workshop is suitable for diverse educational settings from middle schools to university. It introduces participants to selected chart types, enhancing their comprehension through a hands-on creative process. Participants use the Comic Construction Kit to design their own comics, promoting creativity, collaboration, and storytelling around data visualizations. Through a learning by teaching approach, students not only solidify their theoretical knowledge, but also actively discuss and reflect on their understanding through discussion with group members, facilitating deeper learning. The resulting comics serve as both a personal achievement and a collaborative educational resource, enriching future learning experiences. This activity sheet provides interested facilitators with the framework to adapt and conduct the workshop effectively in different learning environments.

Our version of the workshop was designed to fit into two school lessons (100 minutes). However, allowing for more time especially for the creation phase can positively contribute to the quality of the produced comics, as our experience shows that students need some time to come up with a narrative they all agree on.

Preparation:

Preparation:
20 min*

Activity
60+ min

Post activity:
10-20 min

The workshop can be carried out with a fixed chart type in mind (e.g., students should learn about line- and area charts). In this case, it can be helpful to add pre-printed graphs in various sizes and cheatsheets to the Comic Construction Kit of each group. However, students can also be tasked to research their own chart types before the workshop, and either sketch any visualizations themselves or bring some example printouts.

* The stickers and printed materials need to be prepared before the workshop. The time needed depends on the number of participants and available infrastructure. For example, a large set of stickers can be ordered at a professional print service for immediate use, or they can be prepared in-house with a laser cutter or a cutting machine for a smaller cost but more preparation time.

Activity:

1 Step 1: Introduction (20 min)

In the introduction, facilitators explain the goal of the activity and present the materials, i.e., the Comic Construction Kit and any customized additions. Customizable PowerPoint slides are provided in the materials. If the chart types are predefined, a summary of their most important aspects should be added to the presentation. If students were assigned to research their own chart types, only the comic creation process needs to be explained.

2 Step 2: Drawing Comics (60 min)

Students form groups of two to three. Using the comic grids as a basis, they can cut, rotate, annotate, fold, etc. the pre-printed graphs, and add drawings, speech bubbles, or stickers from the sticker sheets to their panels. Students will have to discuss among the group to find a suitable narrative to cover all important parts of their chart type in a comic story.

3 Step 3A: Show & Tell (~20 min)

After the workshop, each group uses the mobile camera (e.g., a phone connected to a Teams or Zoom call) to present their comics to the other groups and explain their story and design decisions.

Step 3B: Exchange Comics (~10 min)

4 Each group exchanges their comic with another group, who can read and review it, e.g., as a part of a group discussion. The finished comics can also be added to a course database for everyone to access, or the class can create a collaborative comic book. If desired, lecturers (or students) can prepare quizzes on the content of the comics and incorporate them in future lectures.

Kit Content Checklist:

- ☐ 2 Sticker Sheets
- ☐ 2 Comic Grids
- ☐ (opt.) Pre-printed Graphs
- ☐ (opt.) Graph Cheatsheets

Utensils checklist:

- ☐ 1 Comic Construction Kit per student group.
- ☐ Pencils
- ☐ Pens
- ☐ Glue
- ☐ Scissors
- ☐ Paper
- ☐ 1 PowerPoint Intro Slides (from the provided Materials or customized)
- ☐ 1 laptop
- ☐ 1 projector
- ☐ 1 mobile camera

Tips:

Depending on the goal of the lecture, it might be beneficial to encourage students to present various aspects of a chart type in their comics (e.g., anatomy, pitfalls, false friends...).

Reflection & Conclusion

Small Reflexion about the workshop (What to take care of... ? What have been produced in previous ones ? How to consider the workshop a success ?)

These workshops were designed to engage non-experts in a first experience of mapping data to a visual representation in less than 2 hours. VisKit allows people to experiment with authoring, reading, editing, and critiquing a visualization. We have used VisKit in various environments and have received positive feedback. The simplicity of the tool lowers some difficulty of use that could happen with digital ones. The workshop provides a practical approach, and does not provide more theoretical knowledge.

This visualization activity uses the medium of comics to learn about various chart types, adding to the slowly growing number of activities to teach “the visualization zoo”. It is based on hands-on engagement and creative interaction with learning materials. We refined the workshop over eight iterations across a wide range of audiences and age groups, however, adjustments might be needed depending on the course context the workshop is held in (e.g., changing the materials in the Comic Construction Kit or adding post-workshop activities to polish the comics and create a collaborative course comic book as a learning resource). Additional lessons learned and more information on the methods and processes can be found in our paper at: <https://fhstp.github.io/comixplain/vis4schools.html>.

Materials:

All materials as well as an example of a Comic Construction Kit are available at:
<https://fhstp.github.io/comixplain/vis4schools.html>

Credits & Acknowledgment :

This activity sheet is based on a template by Samuel Huron et al.:

https://docs.google.com/document/d/1QM_YtQduTIBjA459URkbUFg9NU9V6W2aJLVT3RoEk5Y/edit#heading=h.5iyxxe7prl06