

Facilitator guide: Module 8, Data visualization and storytelling

A teacher-facing companion to Module 8. The module is the full lesson; this guide adds the facilitation layer: a preparation checklist, timing cues, guidance for the discussion questions, and notes on what to emphasize and where students get stuck. Slides and a printable version are below.

At a glance

- **Length:** 90 minutes. A 60 minute and a 120 minute variant are noted under Teaching notes.
- **Level:** undergraduate or graduate students in a data visualization, business communication, or data journalism course. No finance background or prior charting tool is assumed.
- **Access:** the no-code sandbox at sandbox.altfndata.com is the primary path, and is all that is needed for the core session. No API key is required. An optional API and Python extension, for exporting a query result and reproducing a chart in a plotting library, requires an instructor class API key from info@altfndata.com.
- **Goal:** students leave able to build a pricing power bar chart and a sold-lot-count line chart in the sandbox, name at least two techniques that make an accurate chart misleading, and state the recency caveat as a chart-honesty obligation, not just a data footnote.

Before class

- Register your own sandbox account and run both guided queries end to end, so you have known-good bar and line charts on screen before class starts.
- Open the coverage browser on the category you plan to demo (handbags, or another category) and note how the two or three brands you will filter on are written in the designer field.
- Prepare or print the one-page honesty checklist (axis choice, time window, labeling, and caveat language) for use during the discussion and the small-group exercise.
- Load the slides and confirm the projector or screen share shows the sandbox's SQL editor, pre-built charts tab, and export tab clearly, including small text in the SQL editor.
- Optional: if you plan to run the API and Python extension, request a class API key from info@altfndata.com ahead of time and confirm the Python client or tutorials notebook runs in your environment.

Timed agenda with cues

Time	Segment	What to do	Watch for
0 to 15	Session premise	Introduce that the same numbers can produce an honest or a dishonest chart. Preview the two figures the class will build: a pricing power bar chart and a sold-lot-count line chart.	Students assuming "misleading" means "fabricated." Stress up front that every number in a misleading chart can still be correct.

Time	Segment	What to do	Watch for
15 to 25	Sandbox orientation	Confirm students can open a data table, run a query, and reach the pre-built charts and export tabs.	Students getting lost switching between the SQL editor and the charts tab. Walk the click path once as a group before moving on.
25 to 45	Guided demo: pricing power bar chart	Run query 1 live, render the result as a bar chart, and ask students what chart type would have served the same data poorly.	Rushing past the "why a bar chart, not a line chart" question. Let students articulate the reasoning before you supply it.
45 to 60	Guided demo: sold-lot line chart and recency	Run query 2, render as a line chart, and introduce the recency caveat directly at the final one or two quarters.	Students reading the tail-end dip as a demand signal. Name it plainly as an ingestion artifact before moving on.
60 to 75	Small-group exercise	Each group builds one chart, then deliberately produces a misleading version of the same chart using truncation or a cherry-picked window.	Groups that make the misleading version too obvious or too subtle. Nudge them toward a distortion a busy reader could plausibly miss.
75 to 85	Class discussion	Groups present their honest and misleading pairs and the class applies the honesty checklist.	Discussion drifting into aesthetics rather than the specific technique used to distort the reader's takeaway.
85 to 90	Wrap-up and homework	Restate the one-sentence takeaway and hand out the homework.	Leave real time for homework logistics, not zero.

Guidance for the discussion questions

Use these as the "what to listen for" behind each question in the module. They are talking points, not a graded key.

1. **Why a bar chart, not a line chart, for comparing brands.** Listen for: brands have no natural order or continuous relationship, so a line chart would visually imply a trend or trajectory connecting them that does not exist; a bar chart compares discrete categories without that false implication.

2. **Where axis truncation crosses from helpful to misleading.** Listen for: truncation can legitimately make a real, meaningful difference visible when a full zero-based scale would flatten it into invisibility, but it crosses the line when it is used without disclosure to make a small or unremarkable difference look dramatic. The deciding factor is disclosure and proportionality, not the technique itself.

3. **The obligation when a tail-end dip is an ingestion artifact.** Listen for: the chart's creator has an obligation to state the recency caveat plainly, in the title or a footnote, rather than let an accurate but incomplete final data point imply a false conclusion to a reader who has no way to know ingestion is still catching up.

4. **Designing a caveat that a skimming reader still absorbs.** Listen for: the caveat needs to live in text the reader is likely to actually read, such as a chart title or a bold footnote directly under the chart, not buried in a methodology appendix; a visual cue like a shaded region or a vertical line at the cutoff quarter reinforces it.

5. **Genuine relevance versus cherry-picking a time window.** Listen for: a window chosen because it is the period the reader actually cares about, a fiscal year or a policy period, is defensible and should be stated as the reason; a window chosen after looking at several options specifically because it supports a preferred conclusion is cherry-picking, and the tell is usually that the choice cannot be justified independent of the result it produces.

6. **Who is harmed by an accurate but misleading chart, and whether intent matters.** Listen for: the reader is harmed regardless of intent, since they make a decision based on a false impression built from true numbers; intent matters for how we judge the creator, but not for whether the reader was misled.

7. **Three questions before a colleague's chart goes to a client.** Listen for answers drawn from the honesty checklist: does the axis start where the data honestly warrants, is the time window the most relevant one available or a cherry-picked one, and does the title or footnote state any caveat a reader needs, especially recency, plainly enough to survive a skim.

Teaching notes

- **Most common misconception:** students treat "misleading" as synonymous with "fabricated" or "wrong." Show a misleading chart built from entirely accurate numbers, the truncated bar chart from the demo, so they see the numbers were correct and the fault sat entirely in presentation.
- **Second misconception:** assuming a line chart is always the safe, honest default for any comparison. Show the pricing-power-by-brand data rendered as a line chart and ask what false continuity it implies across brands that have no natural order.
- **60 minute variant:** drop the small-group misleading-chart exercise and instead run the truncation and cherry-picking demonstrations as a class-wide discussion; keep both guided demos intact, since the recency caveat rides on them.
- **120 minute variant:** after the paired presentations, add a round where groups swap charts and try to detect the hidden distortion in a classmate's chart before it is revealed, then run one of the "Additional queries" as a class to build a third chart type.
- **If the sandbox is slow or blocked on the room network:** fall back to the pre-run screenshots of both charts you captured in preparation, and have students complete the honesty-checklist exercise on paper against those screenshots, running the actual queries themselves as the first part of homework.

For the full lesson content, queries, and homework, see Module 8. Questions or a class API key: info@altfndata.com.