DMT INSTITUTE NEWSLETTER

Math Success with DMTI

ARE YOUR STUDENTS REALLY UNDERSTANDING LINE PLOTS?

In today's edition, we explore:

- The **top misconceptions** students have about line plots (and why they persist).
- How to use **precise language and visual models** to clarify meaning.
- Why **diagnostic assessment** is key to catching errors early.

Educators!

This week, we dive into **line plots**—a foundational tool for data literacy. Research shows students often misread them, confusing quantities with counts or misinterpreting empty spaces. Nevertheless, with intentional strategies, you can transform these hurdles into opportunities for deeper learning!

Research Says Probably Not

Building data literacy starts early, and understanding line plots is a foundational skill in elementary mathematics. However, evidence shows persistent misconceptions—students frequently misinterpret what each "X" stands for, conflate quantities with frequencies, or misunderstand what empty categories mean on a line plot.

Why do these misconceptions persist?

Many students try to apply strategies they have learned from reading bar graphs (categorical data) to line plots (which show quantitative data). Without a clear mental model for what line plots represent, they may confuse the meaning of symbols and categories, or overlook important cues.

What can educators do?

- **Use precise mathematical language and clear models.** Establish exactly what is being counted and how data is displayed.
- **Progress through Bruner's stages:** Begin with manipulatives (enactive), transition to pictures/diagrams (iconic), and then introduce abstract Xs (symbolic) on a line plot.
- **Encourage student reasoning:** Regularly ask students to explain their thinking; use diagnostic assessment and provide targeted feedback to address misunderstandings.
- **Always label axes and units clearly**, and connect each step to real-world and classroom data.

Helping students overcome these hurdles goes beyond correct answers—it is about building adaptable, confident

data reasoning. Both research and classroom experience show that explicit strategies, visual models, and ongoing feedback are vital for deep understanding.

Let's empower students to become confident data interpreters—one line plot at a time!

How are you building data literacy and helping students master line plots in your classroom?
Email us at mathsuccess@dmtinstitute.com to share your strategies and stories for future newsletters!

Keep developing mathematical thinking!

MORE INFORMATION

This is a quick summary of this topic, but if you want to download and read the research overview or watch the video, go to **Research Overviews** at dmtinstitute.com/research

Would you like to share ideas, contribute a teaching tip, or share a story for the next newsletter? Please email us at mathsuccess@dmtinstitute.com

Please follow us on **Social Media**:


facebook.com/dmtinstitute


x.com/dmtinstitute


instagram.com/dmtinstitute/


linkedin.com/company/dmt-institute


@DMTInstitute.bsky.social


Tiktok.com/@math.success

For more information on **Professional Development** and **Curricular Resources,** visit dmtinstitute.com