

# Three Things to Remember About Behavior-over-Time Graphs

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## 1. Hard versus Soft Variables: It's the Shape That Matters

BOTGs are designed to represent our thinking. Some graphs display 'hard' variables, things that can be quantified. For example, scores on quizzes, number of homework assignments turned in, or recorded time running a mile. Other BOTGs represent 'soft' variables, such as confidence, satisfaction, enjoyment, and so on. All BOTG graphs allow our 'mental models' to take a visual form so we can share them, or analyze them ourselves. Almost all BOTGs, whether displaying hard or soft variables, are more insightful for their general shape and trend than the actual data points. Are we moving in the right direction?

## 2. Two Variables can be Better than One

In addition to the insight gained by drawing a graph of a specific behavior, adding a second variable often increases the learning by an order of magnitude. Encourage students to draw a second line on their graphs, and both you and they may gain perspective on their achievement and learning.

For example, imagine if a student's performance graph shows a fairly flat line over the first few weeks of school. Then the line rises, representing steady linear increase since around Columbus Day. Ask him to think of a second variable to graph on the same pad, letting him know the scale may have to be different for the second line.

- Time spent on sports - maybe he finished playing on a soccer team and had more time for homework.
- Concentration in class - perhaps he changed his seat in class and distractions decreased.

While some of the insights might seem obvious or trivial, more often two lines on one graph push us to think about whether the variables are causal, correlated, or coincidental.

## 3. Questions Focus our Thinking

After students draw their graphs, you can ask them to reflect on the implications of the information using one of these simple structures:

### Three simple questions to encourage action plans:

*What?* Describe the story the graph tells.

*So what?* Analyze what is causing the behavior, and what structures are producing the results.

*Now what?* Decide on a plan going forward and consider which aspects should be changed or encouraged.

### Slightly more sophisticated series of four questions to pose about change (or lack of change):

*What is changing?* Identify the variable being graphed.

*How is it changing?* Describe the trend or trajectory.

*Why is it changing?* Think about the causes and structures driving the behavior shown on the graph.

*What is the significance?* Consider what to do based on the information and insight gained.

Use these structures when talking with students, or ask them to write short answers in a reflection piece.