**Total Time needed 45 minutes**

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| **Handouts:**   * Investigating Correlation Task | **Materials:**   * TI-Navigator * TI-Nspires * ***Investigating\_Correlation StaRT.tns*** * Nspire QuickPoll documents ready to go. |

**Objectives**

The students will determine the relationship between the behavior of a scatterplot and the linear correlation coefficient.

**Problem 1 (20 minutes)**

Send the Nspire file to the students and ask them to read page 1.2. The main purpose of this question is for students to observe how the strength and direction of a scatterplot are represented by the liner correlation coefficient.

*The graph on the page 1.3 shows the correlation for nine points.*

1. *What conjectures can you make about the position of the nine points and the correlation? Drag the points to many different places as you investigate.*

Anticipated responses

* The students may not ever get a negative correlation.
* The students might try to perform multiple types of regression.
* The students might observe the effect of an influential outlier.
* Some students should notice that the liner correlation coefficient ranges from -1 to 1 and that it is a measure of strength.

After the class has had an opportunity to make conjectures, send a **QUICKPOLL** to capture one conjecture per student. Lead a discussion pertaining to the validity of these conjectures. In particular, ask students if they can find counterexamples or if they support the conjectures.

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**Problem 2 (25 minutes)**

Ask students to read page 2.1 and answer question 2. Encourage them to try creating a line of best fit if one does not appear.

*The graph on page 2.2 shows the correlation for nine points. This time, choose* ***only*** *a single point to move.*

1. *What conjectures can you make about the influence of a single point on the correlation?*

Anticipated responses:

* They should note the extreme influence the dot has on the correlation and the LSRL.
* They might not note that an outlier can both raise and lower correlation.

After the class has had an opportunity to make conjectures, send a **QUICKPOLL** to capture one conjecture per student. Lead a discussion pertaining to the validity of these conjectures. In particular, ask students if they can find counterexamples or if they support the conjectures.

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The final question is designed to spark discussion. Students should be randomly called upon if needed.

1. What do these conjectures suggest about the reliability of correlation as a measure of association?

Anticipated responses:

* It can be misleading.
* It tells us information, but does not give us the full picture.
* You must look for pattern irregularities or outliers in scatterplot.

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