Transcript – Analyzing Assessment Items

You may be thinking, "What is the difference between what an item looks like on a screener and a diagnostic assessment?" We are now going to show you sample questions from the screener and the diagnostic assessment and discuss characteristics of them both. As you look at these sample items, notice the distinguishing features of the items, how the content is sampled, what types of skills are assessed, and how the skills are integrated within each item. Also, notice how these features might lead to good screening or diagnostic decisions.

Transcript – Item 1

Let's take a look at this item. Think about what you would know about a student's understanding of fractions if she selected any combination of these options. What would you know about her thinking? Write down your thoughts on page eighteen of your learning portfolio.

Transcript – Item 1 - Debrief

If a student selected I only, we know she can partition part to whole with a picture, but she may not recognize a fraction can also represent a distance or magnitude.

If a student selected II only, she has a notion of 2/5 as number but does not see fractions visually as part to whole. She also does not understand the concept of equipartitioning although she may have a notion of magnitude.

If a student selected I, II, and III, we know she understands part to whole with a picture, number and magnitude, but she may not understand equal partitions.

If a student selected I and III, which is the correct answer, this means she can partition part to whole, she can equipartition a number, and she understands the notion of 2/5 as a number and as magnitude.

This information can be helpful to us to better understand a student's thinking and allow us to become aware of any errors or misconceptions she may have because each incorrect answer is tied back to an error or misconception.

Transcript – Item 2

Let's take a look at this next item. Think about what you would know about a students' understanding of ratios and percents if he selected any of these options. What would you know about his thinking?

Transcript – Item 2 - Debrief

If he chooses answer choice A, there could have been a calculation error. A student might have subtracted four from six to get two and set up an equation to find the percent that two is of ten. However, he could have come to the answer of twenty percent in a different way. This also does not help us know what specific misconception or error the miscalculation is rooted in. It just tells us that he cannot set up the problem correctly.

If he chooses answer C, he may have just read the problem wrong and calculated the percent of books that were about animals. This again does not help identify a mathematical misconception or error.

If he chooses answer D, he again did not set up the problem correctly. The student may have only changed the fraction four sixths to a percent to get sixty seven percent.

Although this item can be helpful in identifying a student who is struggling with pre-algebraic concepts, it does not provide specific diagnostic information about the student's understanding.

Transcript – Items 3 and 4

Take a look at these questions. Write down your thoughts on these two items on page nineteen of your learning portfolio. Remember to notice the distinguishing features of the items, how the content is sampled, what types of skills are assessed, and how the skills are integrated within the item.

Transcript – Items 3 and 4 - Debrief

These items are very similar in content, but if you notice, the universal screener item is testing "do students understand this is a subtraction problem and if so, can they properly subtract fractions?" Similarly, the diagnostic item is assessing if students can add fractions when given a model and write an equivalent representation using multiplication. As in the sample problem from earlier, each of the wrong answer choices will lead back to a common error or misconception. In summary, in the Universal Screener items, the content is integrated, and each item assesses multiple skills and knowledge. In addition, if a student gets an item incorrect, it might not be possible to determine why she answered incorrectly; the answer

choices are plausible, but they don't necessarily lead teachers to a clear understanding of why the student responded incorrectly. The universal screener item also assesses if students understand the model and can add fractions based on the part of the model that is un-shaded. However, in the diagnostic assessment items, the content is "fine grained" so that it assesses specific skills and knowledge related to algebra-readiness. All of the answer choices are clearly linked to a persistent misconception or error in thinking. This information can then be used to design instruction and interventions.