

# Foundation Module

## THE FACILITATOR'S COMMENTARY

### Introduction to the video clips

The series of excerpts from Session 1 of the Foundation Module illustrate an informal assessment of where teachers were in their experience with concepts of congruence and similarity in general, concepts of transformations, and with how a transformational approach might affect the pedagogical decisions they make in teaching congruence and similarity.

### Foundation Module Video clip #1

Watch the clip: [FM-Clip 1](#)

### Background Information

The first task for teachers in the LTG Foundation Module is a written reflection on defining congruence and similarity.

### Facilitator's Commentary

*When teachers completed their writing, I took a quick raise-your-hand-nod-your-head survey to find out if teachers referenced transformations in their definitions and to get a sense of teachers' previous familiarity with transformations and a transformational approach to congruence and similarity. We did not discuss what teachers had written at this time. We viewed it as a work in progress and I mentioned that we would be coming back to it during the week of sessions.*

### Foundation Module Video clip #2

Watch the clip: [FM-Clip 2](#)

### Background Information

In preparation for watching the first teacher video clip (Pamela's Video Clips), teachers worked on the same task they would see a class of sixth graders discuss in the video. The clip shows several excerpts from teachers' responses to the question: Are these rectangles the same?

### The Facilitator's Commentary

*Here again, was another opportunity to informally assess the teachers' previous experience with congruence and similarity, transformations and teaching mathematics using a transformational approach. Teachers' comparisons included mathematical and non-mathematical observations. They seemed to give answers they thought their students would give such as the following: color, size and shape, "orientation", labeling. It wasn't until one teacher said her students would noticed that you could put one rectangle on top of the other that an observation had the*

*potential to connect to transformations, although the teacher did not specifically mention them.*

*Although teachers had answered the question about the two rectangles being the same mostly as they thought their students would, I felt that to a certain extent some of them gave the ‘student’ answers that were similar to the comparisons they had made in their own thinking.*

## **Foundation Module Video clips #3a & b**

Watch the clips: [FM-Clip 3a](#) and [FM-Clip 3b](#)

### **Background Information**

This excerpt follows the viewing of Pamela Clip 1 and, in their small groups, responding to the questions on unpacking the video. However, before sharing their responses, teachers had some mathematics content questions.

### **The Facilitator’s Commentary**

*One teacher asked the question, are length and width defined, meaning was there a way to determine which sides of a rectangle were the length and which were the width. This was the group’s first discussion involving mathematics content. From teachers’ comments, I could see that there were several different viewpoints about this question. I wanted to be sure that we proceeded in a way that created a sense of openness and respected differences and at the same time eventually helped address misconceptions.*

*After hearing several comments related to how teachers were thinking about identifying length and width, I tried to have teachers get back to the video. I asked the teachers how they thought Pamela’s students’ might be thinking about length and width in relation to their decision about the ‘sameness’ of the two rectangles. The teachers recognized that students who did not believe the two rectangles were the same assumed that how each rectangle was turned (what teachers called orientation) mattered. When the rectangle was turned, the measures of the length and width changed making the rectangles “not the same.”*

## **Foundation Module Video clip #4**

Watch the clip: [FM-Clip 4](#)

### **Background Information**

The recognition of Pamela’s students’ misconceptions about the labels *length* and *width* in determining congruence led to a discussion about how the concepts are taught at different grade levels. A teacher who had elementary school experience commented that the way she heard Pamela’s students talk about length and width reminded her of her curriculum when she taught grade 4.

### **The Facilitator's Commentary**

*A teacher then asked how can the concepts length and width be taught in a way that does not lead to misconceptions. But I still was not sure that teachers recognized that the way a rectangle is facing and which sides are labeled length or width did not matter when considering congruence. I could tell that for some teachers identifying length and width was irrelevant in determining congruence, but not all were there yet.*

*We had been discussing this issue for a while and I thought at this point it did not seem that all participants would be able to resolve the question through more discussion. We needed to move on. I ended this introductory discussion with a question for teachers to consider as we progressed through the week's sessions: How can a transformational approach help us resolve this issue? There were two reasons for posing this question. The first is that although mathematically, identifying which dimension is length and which dimension is width does not affect the determination whether two rectangles are congruent, I thought it was more important for the teachers to develop this realization than for me to tell them. Secondly, contemplating this question as we worked our way through coming sessions could lead teachers to develop an understanding of and appreciation for the mathematical power of a transformational approach to address students' misunderstandings, particularly about similarity.*

### **Summary Commentary on Session 1**

*There were many opportunities during Session 1 of the Foundation Module to make an informal assessment of teachers' previous experience with the concepts congruence and similarity, transformations and using a transformational approach in teaching mathematics. I specifically use the word "experience" here rather than understanding, because I found that the differences in how the teachers viewed the concepts were derived from their previous experiences, the curricula and materials they worked with, previous training, classes they taught, discussions with colleagues, etc.*

*For most of the teachers, this LTG training seemed to be the first time they had had an opportunity to delve deeply into the mathematics of transformations and the pedagogical affordances of using a transformational approach. This connection between the mathematics content and pedagogical practice guided my facilitation the rest of the week.*