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Guided Response to Video and Wiske, chapter5
"How Dose Teaching for Understanding Look in Practice?"

Of course, the Mathematics and Science Instructional Categories and Criteria are more science specific than the Teaching for Understanding framework. Despite the differences between the two, they both enable science teachers to set short-term as well as long-term goals and identify issues that both students and teachers are having for a deeper understanding of science. With sound goals and careful planning, science teachers are able to bring authenticity and incorporate more real-life examples and experiments into their lessons in order for their students to think like scientists.

Many teachers are well-informed of what *to do* in their classroom to get the best results and see student achievement increase, however, the reality of any job or situation is often at times it is challenging to achieve that ideal. Wiske and Gallagher give practical applications of how to implement methods of Teaching for Understanding (TfU) into every classroom. "Teaching for Understanding is not simple or prescriptive. Teachers must incorporate into the process the unique situation of their schools, the climate of their classrooms, the dispositions and preparedness of their students, the demands of the curriculum and their own understanding and expertise," Wiske said. (1998) Whether urban or suburban, academic or honors, every teacher can use practical checklists like Gallagher's criteria in chapter 8 of "Teaching Science for Understanding" (2007)—even if it is just little at a time.

There is a specific sequence that teachers must keep in mind when planning their lessons to help students achieve the goal in TfU. Dan discusses how he started with objectives that he formulated into goals, which is what Gallagher describes as the first step in getting students to understand the content. From his clearly planned goals, he used inquiry methods to show students patterns that occur in a given situation. As Wiske said, he used this guided inquiry to help students think like scientists, which leads to a deeper understanding of the content. The fifth category Gallagher writes about speaks to students thinking about phenomena, experiences and their knowledge, which Dan specifically did when he asked students to create a rule, based on their observations and test it out in many situations.

The chapters allowed us to see the importance of utilizing each and every step in Gallagher's Categories and Criteria. When used effectively it can

help guide teachers through the teaching process. “Criterion II.c-Identifying Students’ Ideas and Reasoning- requires teachers to have the professional knowledge, or pedagogical content knowledge, described.” Dan was able to access very quickly where students were in each lesson. He was able to redirect or ask questions to get students back on track when they did not understand.

We all agreed that at beginning of the lessons, it was evident that students were not where Dan thought they were. Informal questions to each lab group showed that Dan needed to revisit material as a class to help them prepare for the next lesson. From there, students went through a guided inquiry experience where they did an activity and drew patterns and created a rule. Dan used these experiences to have students make predictions and make sense of phenomena, like a scientist would. Through these experiences, students saw the content come to life. This helped them further understand what they are learning. Because they are predicting and proving, they are seeing the reasoning behind the properties of light.

We believed that Dan was very successful in teaching for understanding. Dan continued to question students and guide them until they had understanding of the content. This allowed them to have ownership of what they had learned.