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Jose H Giraldo* (jgiraldo@falcon.tamucc.edu), CAMS DEPT., 6300 Ocean dr., Corpus Christi, TX 78412. *Do we make students talk about what they see?* Preliminary report.

The learning of calculus concepts comes from understanding the geometry involved in them. The visualization of the concepts through graphs is most of the time confined to introduce the concepts to then concentrate on the computational component. In this talk I will share results about how more emphasis on visualization, verbalization, and writing may affect the learning of those concepts. Each of the main concepts in differential calculus is discussed in depth graphically before mathematical expressions are introduced. This way the student develops the intuition on the mathematical concepts, make conjectures, and later verify or reject them. The verbalization of their interpretation, crucial in the process, is done in the small group discussions and then shared with the whole class. The discussions on the geometry of the concept are followed by the corresponding algebraic component when possible. The students have progressed from writing little explanations to solution of problems to include a lot of narrative.

The questions I am analyzing are: What is the effect of the visualization on the understanding of the concepts? Are the students connecting the geometric understanding to the mathematical formulation of the concepts? (Received September 28, 2005)