MAKING SENSE (LITERALLY!) OF STUDENTS' MATHEMATICS EXPERIENCE

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While qualitative research methods are gaining more and more acceptance in mathematics education, there is a growing concern about *how* to handle the subjectivity of the researcher, in particular about inferring internal experiences from observed external behaviors (DeWindt-King & Goldin, 2001). In the meantime, *constructivist therapy* (Hoyt, 1994) has successfully employed methodologies that capitalize on the therapist's subjectivity as a tool to help share clients' experiences and facilitate the co-construction of new desired ones.

In this presentation, I suggest and illustrate how to adapt to mathematics education some of these methodologies, in particular, to turn our attention to a "new" teaching/research instrument: the *person* of the teacher/researcher. Some suggestions how to train/enhance this instrument include: attending equally to students' distribution of attention across all of their see-hear-feel aspects of experience; avoiding sensory mismatches (for example, if a student says, "Your explanation is somewhat *foggy*," the teacher's response, "So you *feel* confused?" is a kinesthetic mismatch of the student's the visual system, while asking "What would it take to make it *clearer*?" would be a far better *fit*); accessing students' sensory strategies through "changes in body state—those in skin color, body posture, and facial expression, for instance" (Damasio, 1994) (which might tell us the state they are in, the configuration of their attention, what they are attending to and the level of detail, or whether they are receptive or are closing down a bit); calibrating their sensory experiences through their linguistic metaphors (e.g., "a murky argument," "the solution is screaming at me," or "an esthetic solution"); and attending to the qualities, the so-called *submodalities* of students' mental representations, (Hale-Haniff & Pasztor, 1999) (e.g., location, color, movement, pitch, rhythm, temperature, density, etc.), that can help the teacher/researcher successfully *separate* her own meanings from those of the stuents.

By way of numerous examples, I illustrate how, by using/enhancing their own person as their main instrument, teachers/researchers are able to successfully guide their students in the co-construction of new meanings.

References

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