PARENT CONTRIBUTIONS TO THE COLLECTIVE

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The students in the grade 4/5 class shared their solutions to a coding problem:

> S1: I gave it to my dad and he figured out A,B,C,D but not E.
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> S2: My mom took the problem to work. There's this guy that figured it out. He typed in ABCD and E x4 and it came up with the answer. But it also came up with an explanation how to do it.
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> S3: My dad figured it out by multiplying each number. If I had this written down, I could do it.
>
> RT: So what I'm getting on this is your parents' work? [laughter]

The students in the class are part of an ongoing investigation into the nature of mathematical explanations formulated within the context of the classroom community. On this occasion, the students were sharing their solutions to a problem that was (inadvertently) difficult for many of them. Like the three students above, many others had turned to their parents for help. One could argue either that the parental involvement was either 'good' or 'bad', a help or a hindrance to their child's individual learning; however, by shifting the focus to the classroom as a collective we ask, 'How have the explanatory possibilities for the collective expanded through parental contributions?'

This question is investigated through the literature in cognition and complexity theory (e.g., Davis & Simmt, forthcoming; Varela, 1999). On the occasion above, the students brought in explanations and artifacts ranging from incomplete (without help) to remarkably more sophisticated (with help). The artifacts and ideas from students and parents, including the ones not fully understood, were thrown into the mix. Computer programming, algebraic attempts, organized combinations, and trial and error methods were allowed to reverberate through the collective, and were ignored or taken up, in whole or in part, and subsequently transformed or redirected as part of the ongoing conversation.

Rather than viewing parent involvement as a contribution to individual learning or achievement through their roles as tutors or learners, this report examines an alternative focus on parent involvement. Parent contributions were examined as a means by which the explanatory possibilities for learning expanded for the collective through partially understood artifacts brought to the classroom community.

References

Davis, B. & Simmt, E. (forthcoming). Understanding Learning Systems: Mathematics Education and Complexity Science. *Journal for Research in Mathematics Education.*

Varela, F.J. (1999). *Ethical know-how: Action, wisdom, and cognition.* Stanford, CA: Stanford University Press.