

The Mathematical Discourse in Instruction Framework as Knowledge Resource for Teachers

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Teachers need a repertoire of knowledge resources, in addition to craft knowledge, to inform and explain their pedagogical decisions. Research analytic frameworks for studying instruction can be such knowledge resource. If these frameworks can be made accessible to teachers, they have potential to draw teachers' attention not only to critical aspects of instruction but also as tools for interpretation and decision making. For example, in their work with teachers with Mathematical Task Framework (MTF), Stein and Smith (1988) reported that "after teachers learned about the framework, they began to use it as a lens for reflecting on their own instruction and as a shared language for discussing instruction with their colleagues" (p.3). In this paper, I argue that the mathematical discourse in instruction (MDI) framework (Adler & Ronda, 2015), a research analytic tool for analysing what is made available to learn in instruction has potential to be a powerful knowledge resource for teachers. The MDI framework is grounded in socio cultural perspective of learning specifically in Vygotsky's (1978) notion of mediation and scientific concepts. The development of the framework is also empirically informed by teaching practices. It is more comprehensive than MTF in that apart from tasks, it includes other mediational tools of instruction in keeping with its sociocultural background. This study started with the assumption that for a research analytic framework to be a knowledge resource for teachers, it has to satisfy the following characteristic features: (1) it must be practice-based; (2) has explanatory power; (3) descriptive and evaluative of the mathematics in the lesson; and (4) it must be practical and accessible to the teachers. The first three features are inherent to the framework, that is, part of its design. What needs to be established is whether or not it is accessible to the teachers hence the study reported here. Using design-based research approach, the study sought to answer the following questions: *How may a research framework, such as the MDI framework be mediated to teachers?* and *What does engagement with the MDI framework enable teachers to pay attention to in a lesson?* The study is ongoing and I report here the result of the first three iteration of the training course for mediating the MDI framework. It yielded two major outputs: an adapted teacher version the MDI framework and the identification of design principles for mediating the framework. Initial results also showed the potential of the framework for focusing teachers' attention to the mathematics in the lesson.

References

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