Teaching as assisting individual constructive paths within an interdependent class learning zone: Japanese first graders learning to add using 10.

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Summary: The framework of Tharp and Gallimore was adapted to form a ZPD (Zone of Proximal Development) Model of Mathematical Proficiency that identifies two interacting kinds of learning activities: instructional conversations that assist understanding and practice that develops fluency. A Class Learning Path was conceptualized as a classroom path that includes a small number of different learning paths followed by students, and it permits a teacher to provide assistance to students at their own levels. A case study illustrates this model by describing how one teacher in a Japanese Grade 1 classroom assisted student learning of addition with teen totals by valuing students’ informal knowledge and individual approaches, bridging the distance between their existing knowledge and the new culturally valued method, and giving carefully structured practice. The teacher decreased assistance over time but increased it for transitions to new problem types and for students who needed it. Students interacted, influenced/supported one another, and moved forward along their own learning paths within the Class Learning Path.

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