Research Synopses

- Math-Talk Learning Community
- Precision in Teaching Mathematics
- Personalization in Teaching Mathematics
- Professional Learning in Teaching Mathematics
Personalization in Teaching Mathematics

Renewed interest in personalization is due to educators such as Carol Ann Tomlinson (1998) and her work on differentiating classroom instruction. In *Breakthrough*, Fullan, Hill and Crévola comment on Personalization’s two related components: “motivation to learn and pedagogical experiences that hit the mark particular for the individual” (2006, p. 16)

**Important Aspects of Personalization in Teaching Mathematics**

Personalization is directly related to a teacher’s ability to actively engage the students. Strategies most conducive to this end include cooperative group work, hands-on activities using manipulatives, use of technologies, problem-based learning, and increased student communication. One example of effective educational technology is *The Geometer’s Sketchpad* (OME-licensed dynamic geometry software). Reporting on formal research on GSP with Grade 8 students, Dixon (1997) writes that “students experiencing the dynamic environment significantly outperformed students experiencing a traditional environment” (p. 352). Hufferd-Ackles, Hill, and Crévola (2006) suggest a “Math-Talk Learning Community,” the key components of which are questioning, explaining mathematical thinking, and taking responsibility for learning. Principles and Standards for School Mathematics (2000) also highlights the importance of informal student communication (The National Council of Teachers of Mathematics, 2000, p. 21).

Key to personalization is differentiated instruction, in which the teacher combines these strategies based on careful tracking of the individual student’s readiness, interests, and learner profile (Tomlinson, 2003). According to Leading Math Success: Notable Strategies, “…the teacher’s role is to provide appropriate instructional scaffolding and non-intrusive relational support in order to maximize student achievement within his/her ZDP [Zone of Proximal Development]” (Expert Panel on Student Success in Ontario, 2004).

**Considerations regarding Personalization in Teaching Mathematics**

Teachers must remain aware of overall class progress, even as they personalize learning (Murata and Fuson, 2006). In addition, these strategies may require more rather than less time to prepare, and never compensate for minimal lesson preparation.

- Personalization occurs at the intersection of teacher awareness and teacher competence: increased effective use of strategies increases the range of opportunities to assess learning and respond to student needs.
- Personalization involves differentiating content, process, and product based on classroom observations/assessment of students’ readiness, interests, and learning profiles (Tomlinson, 2003).

**References**


