

INCREASING CONTENT AND PEDAGOGICAL KNOWLEDGE OF PRACTICING ELEMENTARY TEACHERS

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The field recognizes that elementary teachers need to have a deep understanding of the mathematics they teach coupled with effective mathematics pedagogy. According to the National Research Council (2001), “effective programs of teacher preparation and professional development cannot stop at simply engaging teachers in acquiring knowledge; they must challenge teachers to develop, apply, and analyze that knowledge in the context of their own classrooms so that knowledge and practice are integrated” (p. 380).

The goals of the Mathematics Specialist Certificate Program at San Diego State University are to assist elementary teachers to come to a deeper understanding of the mathematics they teach and to enhance their mathematics pedagogy, as well as developing knowledge useable in practice (Ball & Bass, 2000).

The initial cohort of 32 teachers completed an assessment on mathematics content and pedagogy at the beginning and end of their coursework. The changes in teachers’ responses to assessment items indicated gains in knowledge in all content areas surveyed. Teachers demonstrated more ability to reason about students’ thinking, more awareness of instructional representations and of the strengths and weaknesses of these representations, and greater ability to solve the purely mathematical tasks. In addition, classroom observations and teacher reflections were used to document change in practice. Our findings of teachers’ enhanced pedagogy indicate the effectiveness of integrating content and pedagogy in supporting teachers’ blending these two critical elements in their classroom practice.

References

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