Teachers' Professional Development in Mathematics Education

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ABSTRACT

The presentation will begin with a short overview of a review chapter by Zaslavsky et al (2003) in the *Second International Handbook of Mathematics Education*, in which the authors set forth some useful constructs and distinctions regarding mathematics educators' learning. In particular, it will build on the constructs of *direct* and *indirect* learning. These constructs serve as a spring-board towards more refined lenses that can be used for examining teachers' professional development programmes and their outcomes.

A central underlying assumption is that any teacher development activity aims at fostering some kind of teacher learning, that is, at developing teachers' knowledge-base. Commonly, teacher knowledge is examined through Shulman's categories of knowledge or some modifications of his ideas (e.g., content knowledge, pedagogical knowledge, knowledge of students). Keeping in mind Shulman's notions of teacher knowledge, complementary ways of characterizing the nature of professional development programmes will be introduced. More specifically, two main features convey the nature of professional development activities: 1. the main *source* (or context) of teachers' learning, and 2. the elements of teacher *knowledge-base* that are addressed. The source of teachers' learning can be either certain *teaching experiences* (their own or their peers), or certain (carefully designed) *learning experiences*. Elements of teacher knowledge-base will be described along three dimensions: focus (interpretation of student-learning vs. implications for teaching); contemporariness (core universal knowledge vs. knowledge of current trends); and level of generality (generic vs. specific tools).

Data for this review are around 100 articles that were published in JMTE (*Journal of Mathematics Teacher Education*) since its launching in 1998. This is the leading journal in the field of Teacher Education and Professional Development in Mathematics Education; thus, it is assumed that the articles reflect the state of the art of the past decade. Of the above articles, only those reporting on professional development activities and programmes were further analyzed. The constructs introduced above, which will be elaborated on in the presentation, emerged from the first round of examination of the articles. In return, these constructs served as the basis for a more systematic analysis of the data. In addition, other features of professional development programmes will be discussed, such as the type of tasks used for facilitating teacher learning and the kind of outcomes in terms of teacher development. To conclude, a comprehensive account of the field will be presented, indicating strengths and weaknesses, followed by recommendations for future directions of research.