

# Initial Mathematics Teacher Education: Comments and Reflections

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Mathematics teacher preparation is always a formidable task in practical mathematics teacher education and is a significant concern in mathematics education in general. Thus, the section entitled “Initial Mathematics Teacher Education” will be attractive to many scholars in this area.

From the introduction, “Overview of teacher education systems across the world”, readers obtain a clear and comprehensive overview of current systems in use by different countries and school districts around the world and are also exposed to the different features of a variety of systems as well as the explicit and implied ideas and beliefs behind them. The longer and more detailed descriptions and comments provide us with a broad background and comprehensive information that will assist us in better understanding those chapters with special themes.

In the chapters under the topic “Student teachers’ experiences and early years of teaching”, the authors report research on university pre-service teachers, student teachers, and new mathematics teachers; the relationship between university learning and “real-live” teaching; and the relationship between the theoretical and practical aspects of teaching and learning. Such a relationship constitutes a vital link in the chain of initial pre-service training sessions for mathematics teachers. Thus, the theoretical and practical combined analysis, for example, of the Zone of Proximal Development, the Zone of Free Movement, and the Zone of Promoted Action (Goos, this volume) is very important, and I hope it will serve as an exemplar of similar research.

The section entitled “Mathematics educators’ activities and knowledge” especially caught my eye. From this we learn that at the preliminary stage, people usually pay more attention to the external aim they expect to achieve. It is only when they have successfully gone farther that they wish to improve themselves by pursuing higher and newer objectives. I optimistically view the theme on teacher educators’ development as representing the progression of research on mathematics teacher education. I mainly comment on chapters in this section, but some views may apply to the chapters under “Student teachers’ experiences and early years of teaching”. As Zaslavsky and Peled (2007) suggest, there is much in common with

the knowledge and development of mathematics teachers and that of their educators, which is conceptualized as parallelisms by theme editor Pedro Gómez.

One of the key and urgent tasks with which we are confronted is how to better equip mathematics teacher educators. Thus, the profound and substantive research area covered by the chapters under “Mathematics educators’ activities and knowledge” is worth exploring. I hope these papers can assist in forming a new agenda for the mathematics education community.

As theme editor Pedro Gómez points out, it is actually in the primary stage of the development: “There are few such studies”. However, chapter authors have handled some key elements in which a central point of view—reflection—is emphasized. It is really a practical and theoretical concept in the process of teacher educators’ growth. For example, “unlike the many kinds of institutionalized (pre-service and in-service) teacher education programs, there are hardly any teacher-educator education programs, thus, becoming a mathematics teacher-educator occurs over time, through ongoing reflecting on one’s own experiences in facilitating teachers’ learning” (Tzur, 2001). In other words, the number of available teachers to teach us is small. However, in the context of a reflective practitioner, then, the educators’ reflection on their teaching is an inherent aspect of their work, which also allows for their development and growth (Chapman, this volume). This may imply that, at least in an early stage, we have to rely on this way to enhance our internal mathematics power and pedagogical power to meet the needs of new external tasks of teacher education. Thus, self-teaching may be the only approach in which reflection is pivotal.

There is a Chinese proverb: “Teachers open the door. You enter by yourself”. It means that a teacher can only play the role of a guide. However, real progress comes from personal struggle. People should be encouraged to learn from own experiences actively and autonomously. Individual reflection (and that of teacher educators as a whole) could stimulate them to master a higher level of knowledge and skills.

On the other hand, self-reflection is not enough. The mathematics education community should also try to find more ways for “collective reflection”. Special symposiums, conference sessions, a special column in journals, special issues of journals, personal visits, and personal communication can play such roles. For example, a mathematics education association can edit a series of books for the benefit of teacher educators.

The outcome of reflection is always at the heart of valid self-reflection. In this volume, Zaslavsky reviews the literature and compares and analyzes several models and then shows an example of a mathematics task of a triangle with a rhombus. This example provides mathematics teacher educators with a way to reflect.

The conclusion of the chapter is illuminative: there is a fruitful interplay between teacher educators’ roles. “We regard this interplay as a driving force for effective professional development of all mathematics educators that take part in the instructional hierarchy—mathematics teachers, teacher educators, and educators of teacher educators”.

## Further Reading

- Millman, R., Iannone, P., & Johnston-Wilder, P. (2005). Educators and teacher training context. Paper presented at the conference of the 15th ICMI Study on the Professional Education and Development of Teachers of Mathematics, Águas de Lindóia, Brazil.
- Zaslavsky, O. (2005a). Seizing the opportunity to create uncertainty in learning mathematics. *Educational Studies in Mathematics*, 60, 297–321.
- Zaslavsky, O. (2005b). Mathematics educators activities and knowledge: Educators knowledge and development. Paper presented at the conference of the 15th ICMI Study on the Professional Education and Development of Teachers of Mathematics, Águas de Lindóia, Brazil.

## References

- Chapman, O. (2005). Educators reflecting on (researching) their own practice. Paper presented at the conference of the 15th ICMI Study on the Professional Education and Development of Teachers of Mathematics, Águas de Lindóia, Brazil.
- Goos, M. (2005). School experience during pre-service teacher education from students' perspective. Paper presented at the conference of the 15th ICMI Study on the Professional Education and Development of Teachers of Mathematics, Águas de Lindóia, Brazil.
- Gómez, P. (2005). Introduction. Paper presented at the conference of the 15th ICMI Study on the Professional Education and Development of Teachers of Mathematics, Águas de Lindóia, Brazil.
- Tzur, R. (2001). Becoming a mathematics teacher-educator: Conceptualizing the terrain through self-reflective analysis. *Journal of Mathematics Teacher Education*, 4, 259–283.
- Zaslavsky, O., & Peled, I. (2007). Professional development of mathematics educators. In B. Choksi & C. Natarajan (Eds.), *epiSTEME reviews: Research trends in science, technology and mathematics education*. New York: Macmillan.