

Preface

Teacher education is currently receiving extensive attention in mathematics education research, as evidenced by the amount of research articles, books, as well as series of books devoted to this theme. Anna Sfard, in her plenary address at the International Congress of Mathematics Education in Copenhagen in 2004, noted that she was “pleased to find out that the last few years have been the *era of the teacher* as the almost uncontested focus of researchers’ attention” (Sfard, 2004, p. 90). She also described the last two decades of the twentieth century as “almost exclusively *the era of the learner*”, and the several decades prior to that as the “*era of the curriculum*” (ibid.). This research focus has been accompanied by a growing interest in the education of prospective teachers.

Among a large variety of studies devoted to the education of future teachers of mathematics, several directions are being pursued: a focus on teachers’ knowledge and/or knowledge-in-use, a focus on teachers’ interpretation of student thinking and classroom situations, and an examination of the tools that assist the development of teachers’ mathematical knowledge and pedagogical sensitivities. Our research for this book fits within this latter focus: it introduces a novel tool—lesson play—and discusses various examples of its implementation.

Lesson play is a novel construct in research on teachers’ professional development in mathematics education. Lesson play refers to a lesson or part of a lesson presented, written—and sometimes performed!—in a script form, featuring imagined interactions between a teacher and her students. We have been using and refining our use of this tool for a number of years in a variety of situations involving mathematics thinking and learning. We have asked prospective teachers to write lesson plays on a variety of themes and following a variety of prompts. The goal of this book is to offer a comprehensive survey of the affordances of the tool, the results of our studies—particularly in the area of pre-service teacher education—and the reasons for which the tool offers such productive possibilities for both researchers and teacher educators.

Although we claim that lesson play is a novel method, its roots can be traced to Socratic dialogue, a genre of prose in which a ‘wise man’ leads a discussion, often pointing to flaws in the thinking of his interlocutor. Jumping to modern times,

we are further influenced by the work of Sfard (2010) that focuses on communication and, in particular, that describes thinking as communication. The task of writing a lesson play allows an individual to re-embodiment different selves—that of a teacher-character and of different student-characters. Moreover, elaborating on the theatrical interpretation of the word ‘play’ in reference to a script to be potentially performed on stage, we are influenced by research that focuses on improvisation and on the importance of role playing in education. Indeed, we consider teaching as an act of improvisation and we note, metaphorically, that every skillful jazz improviser spent his or her youth practicing scales and chords. As such, creating a script for a play can be considered as role playing in one’s thinking. It is practiced in a safe environment of one’s cubicle, without the need to “think on your feet”. We see this role playing as a valuable part in preparing for “real teaching”.

In teacher education we are constantly seeking methods that improve our practice and consequently the practice of teachers that are enrolled in the courses we teach. We are not alone in this endeavor. Mason, Watson, and Zaslavsky devoted a special issue of the *Journal of Mathematics Teacher Education* (2007, volume 10) to the nature and role of tasks in teacher education. Following up on this initiative, three edited books were published in these series: *Tasks in Primary Mathematics Teacher Education* (2009), *Teaching with Tasks for Effective Mathematics Learning* (2012), and *Constructing Knowledge for Teaching Secondary Mathematics* (2011). Although the latter book does not have “tasks” in its title, its focus is on illustrative tasks for use in teacher education at the secondary level.

The lesson play task is a contribution to this endeavor. Although it focuses on one particular kind of task, it is flexible and can be adjusted to different populations and different mathematical topics. As we demonstrate, it can be used in both pre-service and in-service teacher education. It can also be used at any level of mathematical curriculum, though our focus in this book is on the elementary school grades. We further believe that the task can be extended beyond mathematics; we thus invite colleagues in teacher educators more broadly (in the sciences and humanities) to adapt it to their contexts.

In Part I—Chaps. 1 to 3—we introduce the lesson play, describe our gradual development of this tool, and contrast it with other ways of planning for instruction. Part II—Chaps. 4 to 9—is devoted to the analysis of the plays that are based on particular prompts. In Part III—Chaps. 10 to 13—we present a cross analysis of previous chapters and also discuss various uses of this tool in our work with teachers.

Overall, we present a compelling argument for lesson play as a valuable tool for teachers preparing their lessons, for instructors/teacher educators who work with teachers in various professional development settings, and for mathematics education researchers who study teachers’ knowledge and development.