Chapter 1.1.4
Learning to Teach Mathematics: Expanding the Role of Practicum as an Integrated Part of a Teacher Education Programme


1. Introduction

Teacher education programmes at tertiary educational institutions traditionally comprise three key strands—disciplinary studies, educational studies, and teaching practice (Comiti & Ball, 1996). The aim of these strands is to develop an integrated competence in student teachers and is often referred to as teacher knowledge. Winsløw and Durrand-Guerrier (2007) name the respective target knowledge components as content knowledge, pedagogical knowledge, and didactical knowledge, noting that each component “may occur with different emphases on theory and practice” (p. 7) and are viewed, in terms of weight and organisation, differently within different cultural traditions. In teaching practice, as an activity within a teacher education programme, all these components come into play in the very contextual setting where they are supposed to be functional. This is where student teachers can experience a test of the viability of the level of their own teacher knowledge. It is often witnessed by student teachers that during teaching practice, working along with an experienced practising teacher, is when you really learn something about teaching (Bergsten & Grevholm, 2004; see also Johnsen Høines & Lode, 2007); another quality is added compared to the theoretical courses on theories of education or teaching methods. The relevance of teaching practice, especially when student teachers are given the opportunity to pilot new didactic proposals they have contributed to develop, has been shown to be very high in different national teacher education contexts, even when the differences are significant in terms of structure, organization, and curriculum (Favilli, 2006).

The term “teacher training” reflects an apprenticeship paradigm for the development of teacher knowledge. Historically, for primary education the main part of
the preparation of teachers has also consisted of teaching practice. The apprentice-
ship model has been criticized for supporting a continuation of existing practices
(Lanier & Little, 1986; see also Mewborn & Johnson, 2005). With a modern view of
a scientifically based higher education a wider spectrum of academic courses makes
up, along with teaching practice, what is now normally called teacher education
rather than teacher training (this shift in terminology is also discussed in Bednarz &
Proulx, 2005). The change of discourse is also reflected in a change in the view of
the role of teaching practice and, as a consequence, its organisation within teacher
education programmes.

When talking about teaching practice within an institutionalised teacher edu-
cation programme, we will use the term “practicum”, defined by Wikipedia as “a
college course, often in a specialized field of study, that is designed to give students
supervised practical application of a previously studied theory”. This definition em-
phasizes the connection of practice to theory, excluding a “blind” practice for its
own sake, but does not give full credit to the “silent” knowledge of the community
of practicing teachers earned by experience of teaching, and reflections on this ex-
perience, from which the student teacher can profit. The definition does not exclude
the use of practicum as an empirical field of study for the student teacher, making
it possible to make observations and data collection in relation to tasks provided in
theoretical academic courses, thus also providing feedback from practice to theory.
Thus, in addition to the general definition given previously, by practicum we mean
the work of a student, enrolled in a teacher education programme, as a practising
teacher. This work takes place in a school under the supervision of an experienced
mathematics teacher, the mentor. The work is organised as a result of cooperation
between an institution that offers teacher education and a school. The mentor who
supports the student has been given this task as a formal part of her or his work
in the school. There is an explicit agreed aim with the practicum, which may also
include assigned tasks of an investigative character.

As mentioned previously, teacher education normally has as one part of the pro-
gramme a practicum. Historically the education of teachers has been organised in
many different ways depending on the intended school level and educational tra-
ditions as well as societal and cultural constraints (see, for example, Bergsten &
Grevholm, 2004; Winsløw & Durrand-Guerrier, 2007). In the papers presented at
the 15th ICMI Study we did not find much about how to organise the practicum, al-
though we are aware of the fact that the collaboration between schools and teachers
on one side and the teacher education institution on the other is not at all unprob-
lematic but demands careful work if it is going to function well for the students.
Teachers in schools are in a situation requiring hard work and are often not so eager
to take on another burden, such as being a mentor for a student teacher. In addition,
the extra work is often not paid by the school, although the institution has to pay
the school for the collaboration. Normally this part of teacher education is the most
expensive part, as it is a resource for the individual and not a whole group. This
financial commitment points to the fact that a practicum is considered necessary
in teacher education. What aspects, then, of the teacher profession can one not be
expected to learn only through theoretical studies?