1. Introduction

Becoming an excellent doctor
Encouragement of medical students to use reflection to become an excellent doctor is one of the most appealing challenges in medical education in the past decade.\textsuperscript{1-3} Reflection is at the heart of educational transformation – from mainly theory and discipline-based learning, focussed on separate constructs of knowledge and skills, to competence-based learning, focussed on the acquisition of core competences, i.e. meaningfully integrated units of knowledge, skills, attitudes and behaviour.\textsuperscript{3-5} Medical educators have a distinct responsibility to provide effective pre- and postgraduate education of the reflective competences of medical students and doctors.\textsuperscript{1-3,6-8} In this thesis we will focus on personal reflection in particular, as a critical factor of balanced conduct in medicine.

Changes in society and profession
The educational transformation reflects changes in society and the medical profession. Patients, patient organizations, healthcare institutions, insurance companies and governments have a growing awareness of and demands about the quality of care, each from their own perspective.\textsuperscript{1,2} In the medical profession ‘reflective practice’ is seen as best practice and an excellent doctor as a ‘reflective professional’.\textsuperscript{4,5} The aim of reflective professionalism is balanced conduct, which is focussed primarily on improvement of patient care but also on inter-professional relationships, expertise development and the doctor’s own well-being.\textsuperscript{8-10}

Paradigmatic change
The transformation along the medical educational continuum – from undergraduate curriculum to postgraduate training and lifelong learning – also reflects a paradigmatic shift in the perspective on and conceptualisation of the medical profession and medical education. Teaching and learning is no longer just seen as an application of separate medical discipline-based knowledge and technical skills. Today, a doctor’s expertise is conceptualised as a solid clinical competence that is
embedded in a broad spectrum of professional and personal competences.\textsuperscript{3-6, 11,12}

\textit{A definition of reflective practice}

A comprehensible definition of the intellectual, reflective, affective and behavioural competences of doctors is given by Epstein and Hundert.\textsuperscript{5} They define reflective practice in medicine as ‘the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values and reflection in daily practice for the benefit of the individuals and communities being served’. This definition is attractive because it offers a sense of direction for educational encouragement of reflection and a sense of urgency for the need of reflection as a coordinative competence of doctors to integrate all their other diverse competences.

\textit{Personal reflection}

We distinguish two modes of reflection in medical education and practice: personal reflection and scientific reflection. Personal reflection is mainly oriented towards experience, in particular the process of making sense out of experience. Scientific reflection is mainly oriented towards clinical reasoning and literature in order to optimize the degree of evidence-based clinical judgments.\textsuperscript{13} Our research focuses on personal reflection, which we define as ‘the careful exploration and appraisal of experience, thus clarifying and creating meaning for the benefit of balanced functioning, learning and development’. ‘Experience’ primarily concerns one’s own experience, through self-reflective self-understanding, but also experience of patients, students and significant others through empathetic reflective communication.\textsuperscript{14}

We would like to emphasize that we do not regard personal reflection as an alternative, but as a supplement to scientific reflection. Seeing personal reflection as an alternative may be an appealing but dreadful pitfall, a pre-scientific regression. Our basic belief underlying the research questions in this thesis is that personal reflection is a prerequisite for the acquaintance and maintenance of \textit{balanced} professional conduct in health care. This balance is primarily for the benefit of patient care, but also for the improvement and maintenance of expertise and for the doctor’s self-care and own well-being. This thesis is intended to contribute to augmented recognition, use and encouragement of personal reflection in medical education.

\textit{The thesis}

The subsequent chapters will address the following issues of personal reflection in medical education: visualization, measurement, validation,
the effect of experiential learning, a conceptual framework, conclusions, discussion and perspectives.

Chapter 2. The challenge in this study was to make the rather abstract construct of reflection more concrete for medical educators who play a pivotal role in enhancing the use of reflection by students. They need a picture of personal reflection in medicine, its relevance and use in practice. Therefore, an educational model, the Float Model, has been developed.

Chapter 3. There are no instruments that appropriately measure personal reflection concerning the ambiguity of multifaceted aspects and problems of experience. The research question in this study was: Is it possible to measure the personal reflection ability of medical students in a practical way? This is why the Groningen Reflection Ability Scale (GRAS) was developed.

Chapter 4. An associated important question was: What is the validity of an instrument to measure the construct of personal reflection? In this validation study the GRAS scores were compared with scores of other reflective measurement tools.

Chapter 5. The claim of experience-based learning programmes is that they are effective for the acquisition of reflection by the participating students. Is experiential learning indeed an effective educational method to foster personal reflection? In order to answer that question the growth in reflection by the students who participated in this program was analysed using the GRAS.

Chapter 6. The concept of reflection remains poorly defined, which can result in unrealistic expectations about reflection and the use of inappropriate educational methods. This chapter provides a conceptual framework of personal reflection in health care practice, resulting in a definition of reflection as a competence.

Chapter 7. In the last chapter the conclusions, discussion and new perspectives are formulated.

References

2. ABIM (American Board of Internal Medicine), ACP-ASIM (American College of Physicians-American Society of Internal Medicine), EFIM (the European Federation of


