Supporting medical teachers' learning : redesigning a program using characteristics of effective instructional development

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Supporting medical teachers' learning

Redesigning a program using characteristics of effective instructional development

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Voor Mijn Erik,
Leon, Sebas, de meisjes,
Pap en Mam,
Die veel belangrijker zijn dan welk werk ook!
xxx Love u all xxx

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Chapter 1

General introduction

1. General Introduction

1.1 BACKGROUND OF THE STUDY

> We all have to realize that we have to change something in the normal daily routine, in the normal way of working. This takes time and you need to be motivated; it does not happen of its own accord. (James, this thesis)

> What I really found absurd, really absurd that you have to be present at a consultation session of a student. I think you can arrange [to observe a medical student] more cleverly than by using an expensive staff member. The most expensive staff member should not be placed on a chair, doing, well let's not say nothing, but less efficient work. (Edward)

Medical specialists are busy; they have to take care of their patients, carry out their research, and on top of that they are the ones who teach students who are to become medical specialists. As specialists are busy in their own clinical practice, the time available for teaching is limited, which makes effective teaching a challenge (Prideaux et al., 2000). As other teachers in an academic setting, medical teachers have a high degree of autonomy in the way they teach, and they are busy doing research (Visser-Wijnveen, 2009), leaving teaching their second (or even third) priority. What is more, the status of teaching is perceived as low by many teachers (Palmer & Collins, 2006; Zibrowski, Weston, & Goldszmidt, 2008). The majority of these clinical teachers are experts in *what* to teach, and they have received a thorough training in medical knowledge and skills, but they are no experts in *how* to teach, because they have received little or no training in teaching (MacDougall & Drummond, 2005; Ramani & Leinster, 2008). Furthermore, during their work as supervisors they are more focused on the patients than on their students.

Medical teachers have many roles. Harden and Crosby (2000) identified six groups of medical teacher roles, on the basis of a literature review and the diaries kept by twelve medical teachers over a period of three months. These six roles are: (a) information provider (lecturer, clinical/practical teacher), (b) role model (on-the-job role model, teaching role model), (c) facilitator (mentor, learner facilitator), (d) assessor (student assessor, curriculum evaluator, (e)

planner (curriculum planner, course organizer), and (f) resource developer (study guide producer, resource material creator). Clinical teachers often play many roles simultaneously (Ramani, 2006): on top of the educational roles just listed they are also researchers and doctors.

We know that good teaching in education is important, because it has a positive effect on student's results (e.g., Floden, 2001; Hattie, 2009; Prebble et al., 2004; Wenglinsky, 2002). Therefore, we are interested in finding out how medical teachers can be stimulated to develop their competencies in the various teacher roles.

Teachers can be assisted in improving the quality of their teaching through instructional development programs, which can for instance take the form of workshops, seminars, and long trajectories (Prebble et al., 2004). These instructional development programs can be used to help medical specialists to be successful in their tasks as teachers (Harden & Crosby, 2000; Wilkerson & Irby, 1998) by acquiring new knowledge, skills, and attitudes (Skeff, Stratos, & Mount, 2007), and to prepare their students for the complex and stressful situations inherent in providing healthcare (Steinert et al., 2006).

In this chapter we will first give an overview of the literature on instructional development. In Section 1.2 we will describe what is known about instructional development programs in higher education, what different types of programs can be distinguished, and what the impact of instructional development programs is. In Section 1.3 we discuss what can be learned from the literature about how to design instructional development programs more effectively. We conclude the overview of the literature in Section 1.4 by identifying ways to study teachers' learning in such a program. Section 1.5 sketches a picture of medical education in the Netherlands in general, and in the Leiden University Medical Center in particular. The last section (1.6) gives an overview of this thesis, including the research questions and a short outline of the various chapters.

1.2 INSTRUCTIONAL DEVELOPMENT PROGRAMS

As mentioned above, medical faculty can be supported in their various teacher roles by means of an instructional development program. In line with Stes, Min-Leliveld, Gijbels and Van Petegem (2010) we have chosen the term "instructional development" to refer to programs that enhance teachers' competencies. In this section we will first define the term "instructional development", then go on to list different instructional development programs, and finally we will describe what is known about the effects of those programs in higher education.

1.2.1 Definition of instructional development

In the past, terminology regarding instructional development was often used inconsistently (Freeth, Hammick, Koppel, Reeves, & Barr, 2003; Taylor & Rege Colet, 2010). Taylor and Rege Colet (2010) developed a classification of different types of instructional development activities in which instructional development was subsumed under the overall term "educational development". "Educational development" refers to the whole range of (partly overlapping) terms for development activities: instructional, curriculum, organizational, professional, academic, staff, and faculty development. According to Taylor and Rege Colet (2010), instructional development can be described as any initiative [intended for teachers] that is planned specifically to enhance course design, with the ultimate aim to support student learning. The term "instructional development" excludes curriculum development, which focuses on the development and improvement of study programs as a whole. It also excludes organizational development, which focuses on creating institutional policies and structures that foster an effective learning and teaching environment (Stes, Min-Leliveld et al., 2010). According to Taylor and Rege Colet (2010) professional development, faculty development, and academic development are related to instructional development, but each of these concepts has its own specific focus. Whereas instructional development explicitly aims to help medical staff to grow in their roles as teachers, professional development concerns the whole career development, and as such is not limited to teaching, but also refers to research (Centra, 1989). The terms "academic development" and "faculty development" have the same focus as "professional development", but the first two also cover the aspect of organizational development. In the Australian, Asian, and British contexts the term "academic development" is used, while in North America "faculty development" and "staff development" are common (Taylor & Rege Colet, 2010). In this thesis we will use the term "instructional development", because we will focus on the development of faculty in their role as teachers. For consistency and clarity we will use the same term in our discussion of the available literature in teachers' development, even though in the publications in question other terms may be used.

1.2.2 Classification of instructional development programs

With respect to education in general, Sparks and Loucks-Horsley (1990) identified five models of instructional development: (a) the individually guided instructional development model, in which teachers plan and pursue activities that they believe will promote their learning, (b) the observation/assessment model, in which teachers are provided with objective data and feedback regarding their

classroom performances, (c) the development/improvement process model, in which teachers engage in developing curricula or a school-improvement program in order to solve general or particular problems, (d) the training model, in which teachers acquire knowledge and skills through appropriate individual or group instruction, and which comes closest to what teacher educators have in mind when thinking of instructional development; and (e) the inquiry model, in which teachers identify an area of instructional interest, collect data, and adapt their instruction on the basis of those data. Most of these models are based on research findings related to primary and secondary school teachers (also referred to as K-12 education), but we expect to find similar models in instructional development programs for teachers in higher education, including medical education.

Teaching in higher education is in various ways different from teaching in primary and secondary education (Menges & Austin, 2001): (a) higher education has different purposes, (b) teachers in higher education are primarily oriented towards disciplines rather than the profession of teaching, (c) teachers are specifically trained, not as teachers but rather as disciplinary specialists, (d) teachers in higher education have different roles and responsibilities, and (e) students in higher education are of a different age, experience, and development.

Various reviews on instructional development are available that focus on instructional development in higher education (e.g., Levison-Rose & Menges, 1981; McAlpine, 2003; Prebble et al., 2004; Steinert et al., 2006; Stes, Min-Leliveld et al. 2010; Weimer & Lenze, 1997). These reviews use various classifications, such as type of program (e.g., short training course, long trajectory), type of intervention, and duration of the program. This is different from the five models by Sparks and Loucks-Horsley (1990) outlined above, which classify the programs by the different programs and activities rather than length. All six higher education reviews include all types of instructional development programs except for the review by McAlpine (2003), which focuses on workshops only. Steinert et al. (2006) distinguish between the various instructional development programs on the basis of duration. They mainly took into account studies describing the effects of the more classical kind of face-to-face instructional interventions. The studies that they classified as “other” discussed the effects of instructional interventions such as grants, student feedback, consultation, or on-site training. Stes, Min-Leliveld et al. (2010) distinguish between (1) collective (e.g., short) versus individual (one-to-one support) courses, and (2) traditional (e.g., workshop) versus alternative (e.g., feedback from students) programs. Prebble et al. (2004) used the categories distinguished by Levinson-Rose and Menges (1981) and Weimer and Lenze (1997), and adapted those to also accommodate developments in the field (e.g., learning communities). This resulted in the following five groups:

(a) short training courses, such as workshops, seminars and training programs that take place apart from the day-to-day work of a teacher, (b) on-site training, where an activity is meant to meet the objectives of a specific academic group (e.g., learning communities), (c) consulting, peer assessment, and mentoring, (d) student assessment of teaching, and (e) intensive instructional development.

In this thesis we will use the classification of Prebble et al. (2004) because it is the most comprehensive. It is in line with the classification by Sparks and Loucks-Horsley (1990) mentioned above, but the only exception is that the inquiry model they distinguish is slightly more difficult to integrate into the Prebble et al. (2004) model. In the inquiry model teachers identify a "problem", collect data, and make changes in their teaching according to the analyses of these data. The inquiry model may be integrated in Prebble et al.'s (2004) last category, called "intensive instructional development".

1.2.3 Effects of instructional development programs

All six reviews of research on instructional development in higher education describe the effects of instructional development programs. Levinson-Rose and Menges (1981) report on 71 studies (from the mid-sixties to 1980) about interventions intended to improve college teaching. The results indicate that 62% of the studies they had rated as a "high quality study design" had a positive effect. Weimer and Lenze (1997) updated Levinson-Rose and Menges's (1981) review, but were unable to replicate these findings.

Prebble et al. (2004) collated all research into the impact of student support services and instructional development programs on student outcomes in higher education. Part of their report consists of an overview of the research evidence for the effects of instructional development programs. They concluded that short training courses tend to have only a limited impact on actual teaching practice, and had best be reserved for the dissemination of institutional policy information or the training of specific techniques. Other forms of instructional development were reported to have more positive effects: on-site training, (peer) consulting, student assessments, and intensive programs. These were described as potentially leading to significant improvements in the quality of teaching and student learning.

McAlpine (2003) addressed the question of how instructional development initiatives in higher education can be evaluated, and reviewed seven studies published between 1983 and 2002 reporting on the impact of workshops on both student learning and the organization in which the students worked. She concluded that it was difficult to measure the impact of instructional development initiatives, especially the impact that goes beyond the level of the individual participants, and that future research should concentrate on the

development of instruments to measure the effect on student learning and/or the institution.

A discipline-specific review was carried out by Steinert et al. (2006). They collated findings from 53 studies on the effects of instructional development interventions in medical education, covering the period 1980-2002. They concluded that literature regarding medical education mainly suggested a high satisfaction on the part of teachers with instructional development initiatives and positive changes in teachers' knowledge, attitudes, skills, and behavior, following participation in an instructional development activity.

The review by Stes, Min-Leliveld et al. (2010) differed from previous reviews because they did not cluster the studies on the basis of type of intervention but according to the impact on different "levels" (e.g., on participating teachers or on student results, see also Section 1.4 below). In a selection of 36 studies they found evidence that instructional development interventions that were extended over time had more behavioral outcomes than one-time events. Instructional development initiatives designed as a course seemed to have fewer behavioral outcomes at the teacher level, but more at the student level than initiatives focusing on, for instance, learning on the job. However, since the number of studies on the impact of one-time events and initiatives in other formats was small, further investigation was recommended by the authors.

The reviews discussed above show differences in the reported effects of instructional development. Levison–Rose and Menges (1981) and Steinert et al. (2006) indicate a positive effect for the majority of interventions, but Weimer and Lenze (1997) point out that results were inconclusive. Prebble et al. (2004) and Stes, Min-Leliveld et al. (2010) indicate that the difference in effect depends on the format of the instructional development activity.

Many studies described in the various reviews focus on the effects of instructional development programs, without paying attention to the specific design of the programs themselves (Pololi & Frankel, 2005; Quirk, DeWitt, Lasser, Huppert, & Hunniwell, 1998; Skeff, Stratos, Bergen, & Regula, 1998). The reviews distinguish between different categories of activities, but do not look into the design characteristics of these activities in detail. It is, therefore, very well possible that the differences in the effectiveness of instructional development programs can be explained by differences in design characteristics of those programs.

1.3 USING KNOWLEDGE DERIVED FROM LITERATURE, TEACHERS, AND TEACHER EDUCATORS TO DESIGN INSTRUCTIONAL DEVELOPMENT PROGRAMS

In order to design effective instructional development programs it is not only the results of the previous evaluation studies, but also the knowledge and conceptions of teachers and teacher educators that should be taken into account, as these influence teaching and learning.

1.3.1 Conceptions of teaching

Teachers' conceptions of teaching have been investigated extensively in higher education (cf. Dunkin & Precians, 1992; Kember & Kwan, 2000; Prosser & Trigwell, 1993; Samuelowicz & Bain, 1992; Van Driel, Verloop, Van Werven, & Dekkers, 1997). According to Kember (1997), in conceptions of teaching two broad orientations can be distinguished : (a) teacher-centered/content-oriented, and (b) student-centered/learning-oriented. The conceptions that teachers have will influence how they will actually teach (Konings, Brand-Gruwel, & Van Merrienboer, 2007). Konings et al. (2007) showed that if teachers viewed teaching as transmitting knowledge they were more likely to use content-centered approaches, and if they saw teaching as facilitative they tended to use learning-centered approaches. Prosser and Trigwell (1993) developed a quantitative instrument, the "Approaches to Teaching Inventory" (ATI), to measure teachers' approaches to teaching. This questionnaire contained sixteen items measuring teachers' intentions and strategies. Kyraikides, Creemers, and Antoniou (2009) showed a relation between teaching approaches and student outcomes, and Prosser and Trigwell (1999) found an empirical relationship between teachers' approaches to teaching and students' approaches to learning. They showed that university teachers who focus on their students and students' learning tend to have students who focus on meaning and understanding in their studies (deep approach to learning) (Baeten, Kyndt, Struyven, & Dochy, 2010), whereas university teachers who focus on themselves and what they are doing have students who focus on reproduction (surface approach to learning). According to Kember and Kwam (2000), fundamental changes in the quality of teaching and learning are unlikely to occur without changes in teachers' conceptions of teaching.

Instructional development programs can be designed in such as way as to change teachers' conceptions and their approaches to teaching. There are some studies in which it was found that instructional development programs did change teachers' approaches to teaching and students' approaches to learning

(Gibbs & Coffey, 2004; Ho, Watkins, & Kelly, 2001; Postareff, Lindblom-Ylanne, & Nevgi, 2007; Stes, 2008; Stes, Coertjens, & Van Petegem, 2010).

1.3.2 Conceptions of teacher learning

Cochran-Smith and Lytle (1999) identified various concepts of teacher learning. The two most relevant to our research were "knowledge-for-practice" and "knowledge-in-practice". Each conception has its own specific assumptions and implications. The knowledge-for–practice concept refers to formal knowledge generated by researchers, which can be used to build theory for teachers to use in order to improve teaching practice. Teachers are consumers, not generators of this type of knowledge. Many reforms implicitly use this conception of knowledge, directing efforts at teachers' learning of new content, strategies, or skills, often through direct instruction (Finley, 2000).

The second concept is knowledge-in-practice or "practical knowledge". Practical knowledge develops through experience. Teachers are regarded as generators of knowledge: They develop new ideas, construct meaning, and take action based on the newly developed knowledge. Reforms using this conception hinge on teacher reflection on practice, and use strategies such as mentoring, coaching, study groups, and self-study (Finley, 2000). Professionals have developed this practical knowledge (knowledge-in-practice) as a result of their experience as trainers and their reflections on this experience (Fenstermacher, 1994). Meijer, Verloop, and Beijaard (1999) defined this type of knowledge as the knowledge and beliefs (about teachers' teaching practice) that underlie teachers' actions. According to them, this knowledge is personal, related to context and content, often tacit, and based on reflection on experience; it can include knowledge about subject matter, about the learners, and about how those learners learn and understand (Meijer et al., 1999).

Integration of knowledge from the literature (knowledge-for-practice) with teachers' knowledge (knowledge-in-practice) could lead to a more profound knowledge base of teaching (Verloop, Van Driel, & Meijer, 2001). In their roles as trainers teacher educators have practical knowledge. In our research we have focused on the concepts of knowledge-for-practice and knowledge-in-practice in order to design an effective instructional development program.

1.3.3 Using knowledge-for-practice to identify characteristics of effective instructional development

Relevant knowledge-for-practice on how to make the design of instructional development more effective is available (e.g., Fishman, Marx, Best, & Tal, 2003; Garet, Porter, Desimone, Birman, & Yoon, 2001; Guskey, 2000; Hawley & Valli, 1999; Loucks-Horsley, Stiles, Hewson, Love, & Mundry, 2003; Timberley, Wilson,

Barrar, & Fung, 2007). Garet et al. (2001) indicated that in order to improve instructional development programs the focus should be on a relatively long duration, as they found length to be more important than the format of the course. They also indicated that the content of the course, the possibility of active learning, and integration into teachers' daily practice were important. Hawley and Valli (1999) described their consensus model by means of eight characteristics essential to effective professional development. These characteristics were derived from the five factors (knowledge base, strategic processing, motivation/ affect, development, and content) identified by Alexander and Murphy (1998). Hawley and Valli (1999), for example, indicated that teachers should be involved, that instructional development should be ongoing, and that there should be opportunities to develop a theoretical understanding of new knowledge and skills.

In the medical educational literature Steinert et al. (2006) identified nine characteristics for effective instructional development programs. For five of these they found strong evidence that they contributed to the effectiveness of instructional development programs; the remaining four showed only indications of effectiveness. The five key characteristics were (a) the use of experiential learning, (b) providing feedback, (c) effective peer and colleague relationships, (d) interventions closely following the principles of teaching, and (e) the use of multiple instructional methods for teacher learning. The other four characteristics related to (f) the function of context, (g) the nature of participation, (h) the value of longer programs, and (i) the use of alternative practices. Steinert et al. (2006) indicated that many of their findings were similar to what had been found in reviews of research on the training of university teachers in general. They advised researchers investigating instructional development in medical education to learn from the literature about instructional development outside medical education, incorporate the findings and methodologies from this literature into new research on the context of medical education, and to collaborate with the researchers in the field of higher education in general.

Guskey's work (2003) provides a good source of information, because he reviewed studies of the characteristics of effective instructional development in the more general field of educational research (e.g., primary and secondary education). He identified 21 characteristics of effective instructional development programs. Examples of these characteristics include follow-up, promoting reflection, and being based on the teachers' needs identified.

1.3.4 Using practical knowledge about the medical context

Knowledge-for-practice is primarily known to and developed by researchers (Fenstermacher, 1994), which means that it is often developed without taking context or specific conditions into account. Integrating the knowledge and experience of stakeholders (such as teacher educators and teachers attending an instructional development program) with this knowledge-for-practice may be important for optimizing instructional development. This central role of teacher educators and their knowledge (and beliefs) has been recognized only relatively recently (Calderhead, 1996). Teacher educators have to be involved in the dialogue taking place within the teaching context about the insights developed there, and how these insights relate to other sources of information such as the literature (Verloop et al., 2001).

As mentioned in Section 1.1 above, teachers in medical education have a high degree of autonomy, are very busy with patient care and research, and although they are experts in what they teach they are no experts in how to teach. Designing instructional development programs specifically for this context is important in order to provide medical teachers with programs that are both appealing and effective in the medical context. Taking teachers' preferences and expectations into consideration when designing instructional development programs has been found to increase teachers' satisfaction (Nir & Bogler, 2008). The practical knowledge of teacher educators can help to construct those programs, because of their expertise about medical teachers' learning and how to facilitate it.

1.4 UNDERSTANDING TEACHERS' LEARNING

Evaluating instructional development programs is mostly done by studying the effects of those programs (e.g., Guskey, 2000; Kirkpatrick, 1994). However, Clarke and Hollingsworth (2002) state that if one wants to promote teachers' instructional development it is also necessary to understand the underlying learning processes and the conditions that support teachers' learning. Knowing what teachers learn and what learning processes take place in a specific program makes it possible to target for further improvement specifically those areas where learning is sub-optimal. Models that visualize teachers' learning can identify such areas and are therefore considered by the authors to be helpful in research.

Various models are available for the study of teacher learning. Some focus solely on learning outcomes, whereas others also take the learning processes into account. A model that specifically focuses on the learning outcomes is Kirkpatrick's (1994). His wording was slightly adapted by Steinert et al. (2006) to fit the medical context. The model consists of four levels that

can be used to describe the effectiveness of a program: (a) Reaction, which can be described as participants' appreciation and evaluations of the learning experience, (b) Learning, which consists of changes in participants' attitudes, knowledge, or skills, (c) Behavior, which describes changes in the participants' behavior, and (d) Results, which is concerned with changes in the participants' students, system, or organisation. It is assumed that attaining positive effects on all these levels is a proof of the effectiveness of a given course. In Kirkpatrick's model the Learning level does not include behavioral changes. In this thesis we define learning as a change in cognition (e.g., knowledge and beliefs) as well as a change in behavior (Zwart, Wubbels, Bergen, & Bolhuis, 2007), which makes it broader than the Learning level as defined by Kirkpatrick (1994).

In the literature several models can be found that take into account learning outcomes as well as the learning process. Clarke and Hollingsworth (2002) note that the implicit model underlying many instructional development programs focuses on improved outcomes for students. This implicit linear model (containing four domains) showing teachers' development can be displayed as follows (Figure 1-1):

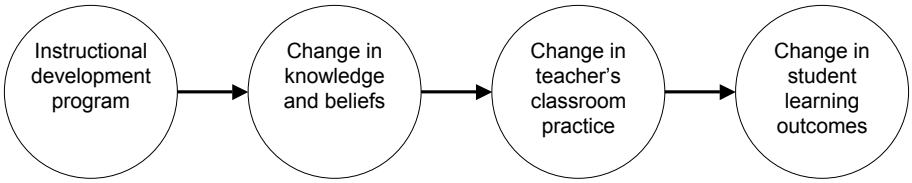

Figure 1-1. Implicit linear model of instructional development programs (Clarke & Hollingsworth, 2002)

Desimone (2009) used this model as a basis and added five core features for instructional development programs: content focus, active learning, coherence, duration, and collective participation. This extended model also included context, such as teacher and student characteristics, curriculum, school leadership, and policy environment. Guskey (1985) developed another model (Figure 1-2), in which changes in beliefs and attitudes take place only after changes in students' learning outcomes have become evident to the teachers.

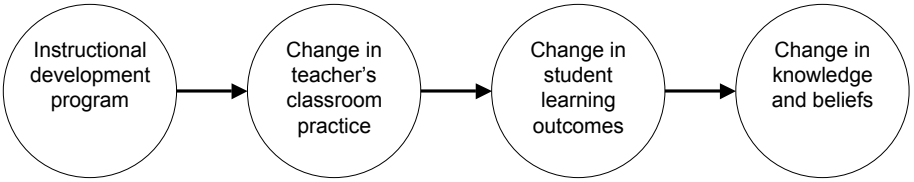

Figure 1-2. Linear instructional development model as proposed by Guskey (1985)

Clarke and Hollingsworth (2002) assume that neither the model in Figure 1-1 nor that in Figure 1-2 depict the reality of teachers' instructional development, because the cyclic character of the teacher learning process was not taken into account; teachers' learning does not have to start from an instructional development program, but can also start from other parts in the model. For example, a teacher might notice that students become very motivated if they are encouraged to discuss case studies among themselves. The teacher might then start practicing with ways to facilitate this discussion by means of a group session. If this new format leads to more motivated students, the teacher might decide to add this format to the curriculum. In this case teacher's learning started with a change in students' learning outcomes. The Clarke and Hollingsworth model describes domains similar, but not identical, to Guskey's (1986), but manages better to incorporate the complexity of teachers' professional growth. The model is non-linear, and could be used as both an analytical and a predictive tool. It could also provide a theoretical background, for example by using the various domains in the design of instructional development (see Chapter 5 for more information). This model is used by a number of authors as an analytical tool to study teachers' learning in secondary schools (Justi & Van Driel, 2006; Wongsopawiro, Zwart & Van Driel, 2009; Zwart et al., 2007).

1.5 OVERVIEW OF THE THESIS

In this thesis we present a study of instructional development programs in medical education. In the last section of this chapter we will describe how medical education in the Netherlands is organized; here, we present our research question:

> *What characteristics of effective instructional development are appealing to medical teachers and relevant for the design of instructional development programs for medical teachers, and what do these teachers learn from a specific program that takes into account those characteristics?*

To answer this question we carried out a research project that consisted of two parts, shown schematically in Figure 1-3. In the first study, characteristics of effective instructional development programs in the medical context were identified. The results of this first study are reported in Chapters 2 and 3. In the second study a successful instructional development program was analyzed and adapted, and an analysis was made of teachers' learning in this adapted program. The results of this second study are presented in Chapters 4 and 5. In Sections 1.5.1 and 1.5.2 the various parts of the study are described in more detail.

1.5.1 First study

Chapters 2 and 3 are about the first study. As a starting point we used 35 effectiveness characteristics derived from the reviews by Steinert et al. (2006) and Guskey (2003) (knowledge-for-practice). We identified which of those 35 effectiveness characteristics were most important in the medical context, by identifying the characteristics that were most appealing to teachers and the most relevant according to teacher educators.

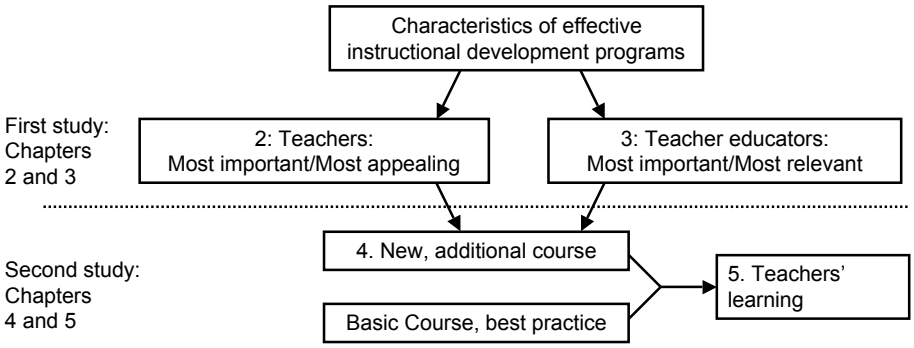

Figure 1-3. Overview of the thesis

The first research question guiding this study (discussed in Chapter 2) was:

> *Which characteristics of effective instructional development are most appealing to medical teachers when they consider participating in instructional development, and what are the factors underlying these preferences?*[1]

1 Articles on the studies described in these chapters have been submitted to international scientific journals; there may be some textual overlap between chapters.

We used an on-line questionnaire that we administered to medical teachers in one Dutch medical school, in order to gather data about their teachers' preferences when considering participation in instructional development programs (knowledge about the target group). The data were analyzed using descriptive statistics, factor analysis, and analyses of variance.

In the second part of the first study (described in Chapter 3) the following research question was explored:

> *Which characteristics of effective instructional development do teacher educators consider most relevant when designing actual instructional development programs in medical schools?*

To answer this question we conducted interviews with teacher educators from all eight medical schools in the Netherlands. These teacher educators were experts in designing instructional development programs for medical teachers. Their practical knowledge about such programs, and their experience with best practices in medical education were useful to identify which of the 35 effectiveness characteristics they considered most relevant for teachers' learning in the medical context.

1.5.2 Second study

In Chapters 4 and 5 we discuss the second study, in which the sixteen characteristics derived from the first study were used to analyze an already successful course. We subsequently redesigned a successful course.

In Chapter 4 we answer the following two research questions:

> *Can characteristics of effective instructional development be used as a framework by which to understand why a specific short course is successful? What do participants report to have learned from an additional course that included all characteristics selected?*

The sixteen characteristics identified in Chapters 2 and 3 were used as a framework to analyse "Train the Trainers", an existing instructional development course that has already proven successful in medical education. In this thesis this course is referred to as the "Basic Course". The framework of the sixteen characteristics was subsequently used to design a new, additional course, referred to as the "Plus Course". The effect of this Plus Course was studied by asking participants about what they learned in terms of Kirkpatrick's four levels (1994).

The research questions discussed in Chapter 5 are:

How can teachers' learning in the adapted instructional development program be visualized? What kind of learning sequences can be recognized in the various components of the program?

In this chapter we report on the in-depth interviews we conducted with four of the participants in the adapted course. They were asked about their learning in both the Basic Course and the Plus Course, so that it was possible to study teachers' learning in the various parts of the program. Their learning was visualized using the interconnected model of teachers' professional growth (IMTG model, see Section 5.1.4) developed by Clarke and Hollingsworth (2002). Diagrams were drawn for teachers' learning in the different parts of the program.

Earlier versions of the reports presented in Chapters 2 and 3 were written for medical educational journals. Earlier versions of Chapters 4 and 5 were written as papers for journals on higher education. Because of differences between these fields those chapters differ slightly as to format and style of writing.

In Chapter 6 the main findings and conclusions of the previous chapters are combined and summarized in order to answer the overall research question of this thesis. In this final chapter we also discuss the limitations of the study. The thesis concludes with a discussion of the implications of the findings, suggestions for future research, and implications for teachers, teacher educators, and researchers concerning (the design of) instructional development programs.

1.6 CONTEXT

In this thesis we focus on instructional development for medical teachers in the Netherlands. The data used to answer the research questions were gathered in the medical school of the Leiden University Medical Center (LUMC). The study described in Chapter 3 also included data gathered in the other medical schools. In this section we will first present an overview of medical education in the Netherlands, and then describe the medical school at the Leiden University Medical Center.

1.6.1 Medical education in the Netherlands

The Netherlands has a rich history in medical education, and nowadays its educational practice can be called "modern" by international standards (Ten Cate, 2007). Figure 1-4 gives an overview of the organization of the medical education programs in the Netherlands. Medical students attend six years of undergraduate medical education in one of the eight medical schools in the Netherlands (VUMC, Amsterdam; AMC-Uva, Amsterdam; LUMC, Leiden; Erasmus MC, Rotterdam;

UMCU, Utrecht; AZM, Maastricht; UMCG, Groningen; and UMC St Radboud, Nijmegen). After graduation the students can work as "residents-not-in-training". To become a "resident-in-training" in one of the 27 disciplines they have to apply for a place in postgraduate medical education. Postgraduate medical education takes between three and six years, depending on the specialism, after which the students obtain their license as a specialist. A resident-in-training works under the supervision of an established specialist. Recently, postgraduate medical education was redesigned, introducing a nationwide competency-based training and mandatory in-training assessments, and portfolios as tools for assessment and learning for residents (Ten Cate, 2007).

The competences the students are supposed to acquire are based on the CanMEDS model (CanMEDS, 2000). The CanMEDS framework is organized around seven roles: (a) medical expert (central role), (b) communicator, (c) collaborator, (d) health advocate, (e) manager, (f) scholar, and (g) professional. These roles indicate the essential competences required of a physician. The model has been designed to improve patient care, and defines the competences needed for medical education and practice.

With the newly introduced competency-based curriculum, portfolios have been introduced as a new way to assist medical students in their learning. Portfolios are tools to be used in three ways: (a) for assessment, (b) to stimulate learning from experience, and (c) to plan learning (Van Tartwijk & Driessen, 2009).

1.6.2 The Leiden University Medical Center (LUMC) in the Netherlands

In this thesis we study different groups within medical staff: in Chapter 2 we study the preferences of medical teachers in the Leiden University Medical Center (LUMC), in Chapter 3 we interview medical experts from all eight medical schools in the Netherlands, and in Chapters 4 and 5 we focus on specialists in the LUMC and affiliated hospitals. As most chapters in this thesis concentrate on faculty at the LUMC, we will in this section describe the LUMC in more detail.

The LUMC is a medical school with more than 7,000 staff members. According to its mission statement (LUMC, 2010) it offers both quality and quantity in the full range of clinical medicine: patient care, student education, and the training of medical specialists. It also has an international top position in research. Concerning education the LUMC wants to train patient-oriented physicians and researchers who have a critical, scientific attitude and professional curiosity. Physicians must also have a thorough understanding of their profession and take pleasure in learning. They should be trained to develop good interpersonal skills, which will enable them to communicate with patients professionally and conscientiously. LUMC trains specialists in 27 disciplines.

LUMC wants its specialists to have a critical attitude towards everything that is not "evidence based". Above all, they are expected to be critical of their own actions and to have acquired good communication skills. Specialists trained at LUMC should have considerable experience in carrying out scientific research and publishing the results, so that they can identify and contribute to promising developments in the field of medicine (LUMC, 2010). Various reports are available on the quality of medical education in the LUMC (LUMC, 2003a, 2003b; QANU, 2004, 2008). In 1997 the accreditation review committee published a critical report on the quality of the curriculum, which was described as "traditional in design and content". According to this report the curriculum might not lead to sufficient stimulation of self-regulated learning and "problem-oriented" thinking in students. It also stated that instruction focused too much on lectures, and that assessment procedures were not transparent enough.

The recommendations of the visitation committee led to extensive innovations in the curriculum (LUMC, 2003b). Within this improved curriculum the medical school wanted to make greater use of casuistry (i.e., the analysis of specific cases and precedents) as the basis for student learning, teach in smaller groups (e.g., clinical presentation), make more frequent use of teaching strategies that stimulate more autonomous student learning, and adopt assessment procedures that clearly fit these new teaching activities. In 2007-2008 the LUMC also switched to a Bachelor/Master degree system (QANU, 2008).

For the faculty of the LUMC medical school the implementation of these innovations was not an easy task. For most of the staff these tasks were new, requiring new knowledge and skills. As the number of students also increased (it doubled between 1997 and 2003), it became even more challenging for teachers to find sufficient time for teaching. As a means to support faculty in their roles as teachers, a new policy on the instructional development of teachers was implemented (LUMC, 2007). In this policy new staff members were expected to obtain a teaching qualification, and current staff were asked to fill in a self-evaluation form in order to assess the quality of their teaching skills. If necessary, staff members formulated a personal plan together with their manager to improve teaching skills. In this plan four levels of teaching competency were formulated:

1. Teaching small working groups.
2. Teaching both small working groups and larger groups in a lecture, and evaluating the training/instruction.
3. Teaching small and large groups (1 and 2), and developing, organizing and coordinating training. In this role the teachers should also be able to interpret the results from the evaluation of training and research training themselves.

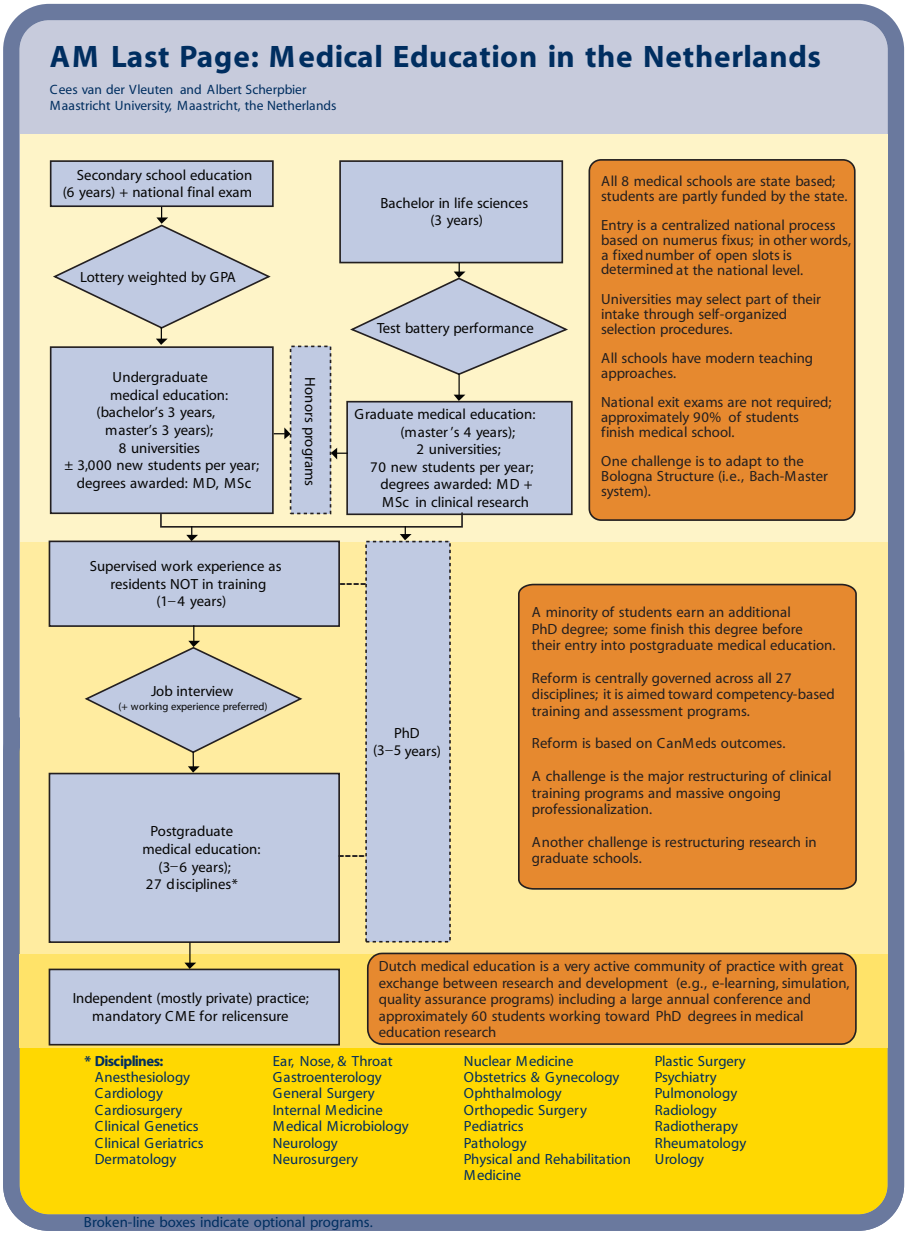

Figure 1-4. Overview of the medical education program in the Netherlands (Van der Vleuten & Scherpbier, 2009); printed by permission of Wolters Kluwer Health

4. The same as 3, but teachers will also be responsible for managing the training, curriculum development, and research on training.

For the various roles different qualification requirements were formulated, and arrangements were made to facilitate medical faculty in their roles and careers as teachers (LUMC, 2006).

Chapter 2

Characteristics of effective instructional development: teachers' preferences

2. Characteristics of effective instructional development: teachers' preferences[2]

Literature reviews are available in which characteristics of effective instructional development are identified. Little is known about how important these characteristics are for medical teachers when they consider participating in instructional development. The aim of this research project was to identify the importance for medical teachers of those characteristics. An on-line questionnaire was developed in order to gather data about medical teachers' preferences, based on 35 characteristics of effective instructional development that had been identified in the literature. The data were analyzed using descriptive statistics, factor analysis, and analyses of variance. Although almost all characteristics were to some extent appealing to medical teachers when they considered participating in instructional development, there were marked differences. Characteristics that were relatively more important were, for instance, a focus on the improvement of teaching competencies and attention to the context in which the teachers work. Three factors were identified underlying the teachers' preferences: (a) facilitated collaboration in educational improvement, (b) individual development as a teacher, and (c) evidence-based education.

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2.1 INTRODUCTION

Mere content expertise no longer suffices in medical teaching (Steinert et al., 2009). New knowledge and skills in teaching and learning are necessary to prepare students for the more complex and stressful situations in healthcare (Steinert et al., 2006) and to prepare them for their various roles as teachers (Harden & Crosby, 2000). Also, for medical teachers their teaching duties have expanded beyond the classroom and include teaching small groups, providing instructional materials beyond the syllabus (Ramani, 2006), using case-based, active learning methods, and implementing new forms of assessment (Irby & Wilkerson, 2003). Therefore, instructional development is needed to make it possible for teachers to acquire new knowledge, skills, and attitudes (Skeff et al., 2007), and to encourage them to have a flexible and learner-centered approach to teaching (Ramani, 2006). In medical education, instructional development has become increasingly important (Skeff et al., 2007) and seems to be evolving into a discipline in its own right (McLean, Cilliers, & Van Wyk, 2008).

Along with the growing recognition of the importance of instructional development there is also a growing awareness of its current shortcomings (Guskey & Huberman, 1995), as these programs do not always have the desired impact (Fullan, 2001). Reasons for this are, for example, a lack of attention for teachers' preferences or work contexts (Clarke & Hollingsworth, 2002; Day, 1999; Loucks-Horsley et al., 2003), a separation of practice and theory (e.g., the training does not take cases from actual practice into account) (Curry, Wergin, & Associates, 1993), and format: programs are often designed as a series of short workshops without follow-up (Clark et al., 2004; Garet et al., 2001). The emphasis is mainly on a deficit approach instead of focusing on teachers' preferences with regard to instructional development, or on opportunities for active learning on the part of the teachers themselves (Clarke & Hollingsworth, 2002).

2.1.1 Characteristics of instructional development aimed at improving effectiveness

Research is available on the question of how to improve the effectiveness of instructional development. Steinert et al. (2006) carried out a systematic review of the medical educational literature, focusing on evidence of effectiveness for characteristics of instructional development. To describe the effectiveness of instructional development programs they used the model developed by Kirkpatrick (1994) for evaluating educational outcomes. In this model four levels of effectiveness are used to describe outcomes: (a) reaction, (b) learning, (c) behavior, and (d) results. The first level (Reaction) describes the participants' evaluations of their learning experiences, for example their satisfaction. The

Learning level describes the changes in participants' attitudes, knowledge or skills, e.g., gaining more knowledge about teaching methods. The Behavior level concerns changes in behavior, for instance, taking more time for individual feedback to students. Finally, the Results level describes changes in the participants' students, the system, or the organization, for example improved results on students' examinations. On the basis of their extensive review of 53 studies Steinert et al. (2006) identified a total of nine characteristics for effective instructional development programs. Five of these were viewed as "key characteristics", because there was strong evidence for their contributing to effectiveness. These key characteristics were: (a) using experiential learning, (b) providing feedback, (c) enabling effective peer relationships, (d) interventions largely following the principles of teaching and learning, and (e) using multiple instructional methods. Four characteristics were considered "worthy of further exploration", because although the literature provided no concluding evidence, (sometimes strong) indications were found for their contributing to the effectiveness of instructional development. The characteristics *worthy of further exploration* were: (a) the role of context, (b) the nature of participation, (c) the value of longer programs, and (d) the use of alternative practices.

According to Steinert et al. (2006), many of their conclusions were similar to those found in reviews of research on instructional development of university teachers in general. They recommended that researchers investigating instructional development in medical education should learn from the literature about instructional development in general in order to incorporate its findings and methodologies into new research in the context of medical education, and collaborate with the researchers in the field of higher education. In educational research outside medical education, many studies that focus on instructional development have identified characteristics of effective instructional development (Garet et al., 2001; Guskey, 2000; Hawley & Valli, 1999; Knapp, 2003; Loucks-Horsley et al., 2003). Hawley and Valli (1999) formulate the following eight characteristics of effective instructional development, which in their view sum up all available research and reflect the desire for programs to: (a) be driven by the analyses of the differences between goals and standards for student learning and student performance, (b) involve learners (such as teachers) in the identification of learning needs, (c) be primarily school-based and integral to school operation, (d) provide learning opportunities that address individual needs but for the most part are organized around collaborative problem solving, (e) be continuous and ongoing, involving follow-up and support for further learning, (f) incorporate the evaluation of multiple sources of information on outcomes for students and the processes involved in implementing the lessons learned through instructional development, (g) provide opportunities to develop theoretical understanding of

the knowledge and skills learned, and (h) be integrated with a comprehensive change process. Loucks-Horsley et al (2003) mention seven characteristics: (a) finding time for instructional development, (b) ensuring equity, (c) building a professional culture, (d) developing leadership, (e) building capacity for sustainability, (f) scaling up, and (g) garnering public support.

Thus, different reviews mention a number of characteristics that are important for effective instructional development. Guskey (2003) has carried out a "meta"-review of the lists of such characteristics available in educational research outside medical education, also including the characteristics presented by Hawli and Valli (1999) and Loucks-Horsley et al. (2003), mentioned above. From studies on instructional development he reviewed thirteen lists of characteristics that had been found to be effective and were created by various educational groups. Guskey (2003) summarized these lists into an overall list of characteristics of effective instructional development. He states that these characteristics had best be described as: "yes, but", because in the "real-world context" the complexities of those varied contexts determine whether or not a particular characteristic or practice will produce the desired results. He notes that it is possible that programs that appear to be quite similar may for subtle and unanticipated reasons produce different results, as nuances of the context are difficult to recognize and even more difficult to take into account. Finally, he identifies 21 characteristics that are important for the effectiveness of instructional development. Examples are: providing sufficient time and resources, promoting collegiality and collaboration, including procedures of evaluation, and being in line with other reform initiatives. An overview of all characteristics distinguished by Guskey can be found in Appendix A. Guskey's meta-review (2003) can be used as a representative example of characteristics of effective instructional development in general educational research.

2.1.2 Taking medical teachers into account

The characteristics mentioned above can be used to create a good learning environment for teachers, but for this environment to take effect it is also important to take the learners (here: medical teachers) into account. From the literature it is known that learners are not just consumers of instructional development, but that they play an active role (Lowyck, Elen, & Clarebout, 2004). Research (e.g., Elen & Lowyck, 1998) has shown that learners do not always experience the learning environment in the way it was intended by the designers. Rather than the learning environment itself, it is the learners' perceptions of this learning environment that influence learning behavior and the quality of the learning outcomes (Entwistle, 1991; Konings, Brand-Gruwel, & Van Merrienboer, 2005). So, medical teachers' perceptions as learners in instructional development

programs are important. The way learners perceive a learning environment is influenced by their conceptions about learning, tasks, and environments (Elen & Lowyck, 1999). Conceptions can be defined as "specific meanings attached to phenomena, which mediate our response to situations involving those phenomena" (Pratt, 1992, p.204). According to Pratt (1992) we view the world through the lenses of our conceptions, interpreting and acting in accordance with our understanding of the world, so those conceptions (or beliefs) act as a filter that affect the learner's use of both the program and the support in the learning environment (Lowyck et al., 2004). The meaning of the term 'beliefs' seems to be largely synonymous with the definitions of 'conceptions' (Kember, 1997). Attention to learners' beliefs should be a focus of educational research and can inform educational practice in a way that prevailing research agendas do not and cannot (Pajares, 1992). Entwistle and Peterson (2004) state in their review that the consistency of those conceptions/beliefs of learners can be seen in the consistent way in which learners described what they believed to be "good teaching" and also in their preferences for specific types of courses and teaching. Taking teachers' preferences for instructional development into account will help to identify programs that are in line with learners' perceptions and underlying conceptions about learning.

2.1.3 Medical teachers' preferences

Although information is available about the characteristics that contribute to the effectiveness of instructional development (Guskey, 2003; Steinert et al., 2006), no information is available yet about how these characteristics relate to what medical teachers themselves perceive to be important in instructional development. Taking teachers' preferences and expectations into consideration in the design of instructional development proved to increase their satisfaction (Nir & Bogler, 2008). Increased satisfaction, as an example of the first level (Reaction) in Kirkpatrick's model of effectiveness (Kirkpatrick, 1994), might be a prerequisite for attaining the other levels in Kirkpatrick's model.

Van Herpen (2007) distinguishes three types of teachers' preferences: (a) preferences about *conditions* for instructional development, (b) preferences related to the *content* of the instructional development program, and (c) preferences related to the *format* of the instructional development program. The conditions for the first type of preference, can be related to the characteristics of effective instructional development mentioned in Section 2.1.1. As regards the second type of preferences, i.e., related to the content of instructional development programs, research findings are available about medical teachers' preferences on career development (Baldwin, Levine, & Mccormick, 1995; McLeod, Steinert, Conochie, & Nasmith, 1997; Miedzinski, Davis, Al-Shurafa, &

Morrison, 2001). Miedzinski et al. (2001) conducted a self-administered career development preferences survey among 185 full-time medical academic faculty members. The faculty members were asked to rank 35 career development skills. Only one topic in the top ten of the resulting career development preferences could be related to a medical-educational preference, the others were related to broader development preferences such as effective writing skills for grants and publications, and time management. McLeod et al. (1997), using an 18-item survey among 450 staff members, found seven areas of skills that were seen as promoting career development. Those were (in order of preference, starting with the most popular one): (a) improving lecture skills, (b) using computers for medical informatics and the preparation of audiovisual aids, (c) clinical teaching, (d) non-teaching activities (including research and administration), (e) small group teaching, (f) evaluation of students and residents, and (g) giving effective feedback. So, in this study the faculty members indicated more medical educational-related preferences than in the study by Miezinski et al. (2001). Data are also available on topics medical teachers prefer to see in instructional development programs (Foley & Gelula, 1997; McLeod et al., 1997). Foley and Gelula (1997), for example, identified 27 subject areas on the basis of their survey instrument administered to 323 medical teachers. Interestingly, topic preferences were quite similar to the results found in 1975 by Page, Foley & Pochyly. Six topics were ranked in the top twelve in both surveys: (a) improving communication skills, (b) improving verbal questioning techniques, (c) improving lecturing skills, (d) improving group discussion skills, (e) acquiring skills in the self-evaluation of teaching, and (f) improving skills in evaluating student performance. The third type of preferences is about the preferred format of a program. It is often reported that medical staff prefer short, condensed sessions of one to three hours on a specific topic (Foley & Gelula, 1997), or a half-day workshop (McLeod et al., 1997). Chauvin, Anderson and Bowdish (2001) distinguish between the types of knowledge and skills as related to preferred format. They administered a questionnaire in four states in the US among 883 respondents working in public health. It was found that workshops were mainly popular as a way to enhance basic knowledge and skills (26% wanted a workshop away from the worksite, and 18% preferred a workshop at the worksite, i.e., 44% in all), but for the refinement of high-level knowledge and skills printed materials (31%) and listening to a knowledgeable speaker (26%) were favored. Teachers preferred individual coaching if they had to acquire completely new knowledge and skills (41%), although workshops away from the worksite were also popular (26%). Various authors also mention the potential use of needs assessments in institutions in order to better cater for teachers' educational preferences and

improve the quality of medical education (Aherne, Lamble, & Davis, 2001; Grand, 2002; Norman, Shannon, & Marrin, 2004).

2.1.4 Research question

In this chapter we intend to add to the available body of knowledge by discussing our investigation of medical teachers' preferences for the conditions of instructional development (first type of preference). To this end we will start from the characteristics that were found to be related to the effectiveness of instructional development. We also looked for underlying structures in these characteristics and tried to find patterns. The findings described in this chapter can be important for the design of instructional development that is both motivating and effective for medical teachers.

The research question that guided the research described in this chapter is:

> *Which characteristics of effective instructional development are most appealing to medical teachers when they consider participating in instructional development, and what are the factors underlying these preferences?*

2.2 METHOD

2.2.1 Instruments

In order to gather data about those characteristics of instructional development that are important to medical teachers when they consider participating in instructional development programs, we developed an on-line questionnaire. We used two sources from the literature to develop the questionnaire items: Steinert et al. (2006) and Guskey (2003). As we were focusing on the preferences of medical teachers, we took as our starting point the nine characteristics identified in the review of medical education literature by Steinert et al. (2006) as important for effectiveness or worthy of further exploration. Steinert et al. (2006) suggested using research findings about characteristics of effective instructional development outside medical education as an additional source in future research on these characteristics. This prompted us to use the meta-review by Guskey (2003) as an additional source, because his research combined the results of various other reviews on characteristics of effective instructional development. Appendix A lists the two different sources, and the items that were finally included in the questionnaire. In our translations we stayed as close as possible to the original wording of the characteristics in the reviews. Any

differences in content between the original descriptions of the characteristics and the corresponding items in our questionnaire concern the personalization and concretization of the characteristics. Descriptions of characteristics that contained the word “and” were, when possible, separated into two items (this was done four times). Three characteristics identified by Guskey (2003) overlapped with characteristics identified by Steinert et al. (2006). For these three characteristics the wording by Steinert et al. (2006) was used. This resulted in a questionnaire containing a list of 35 items, asking teachers to indicate how important each characteristic of instructional development was for them if they were deciding whether or not to participate in instructional development activities. In the questionnaire the items were introduced by the sentence: “If you consider participating in instructional development activities, which characteristics are important for you? In instructional development I think it’s important that:….”. Respondents answered on a five-point Likert scale, ranging from ‘strongly disagree’ to ‘strongly agree’.

The questionnaire was piloted by asking six medical teachers in the LUMC to do a trial run. This resulted in fine-tuning the translation of a number of items. Besides the 35 items about the preferences for characteristics of effective instructional development, the questionnaire also contained questions about teachers’ backgrounds, such as teaching experience, experience with instructional development, teaching tasks, and specialisms (see Appendix B, in Dutch).

2.2.2 Participants

A link to the online questionnaire was emailed to 878 respondents registered as scientific staff (e.g., researchers and physicians) at the Leiden University Medical Center (LUMC). Scientific staff in this medical school is expected to perform educational tasks besides patient care and/or research work, but these teaching tasks can be small. After two weeks a reminder was sent by email. Only those respondents who completed the entire questionnaire were included in the analyses.

2.2.3 Analysis

The mean and standard deviations of the items were calculated in order to identify the importance of the characteristics to the teachers, and identify items about which opinions differed. To identify underlying factors an exploratory factor analysis, using Varimax rotation and pairwise deletion of missing values, was conducted on the 35 items. Internal consistency of combinations of items that loaded highest on each factor was calculated using Crohnbach’s Alpha, to establish whether these combinations of items could be used as a scale to

identify differences between various groups of medical teachers. The differences were analyzed using Analysis of Variance (ANOVA).

2.3 RESULTS

2.3.1 Respondents' backgrounds

A total number of 360 staff members responded to the online questionnaire (response rate 41%). The respondents and non-respondents were distributed evenly among the various divisions in the medical school and among groups with different main tasks. Seventy-seven respondents indicated that they were unable to answer *all* our questions. We had expected this, because many of the staff members are known to have only a very small teaching task, or none at all. Only those respondents who completed the entire questionnaire were included in the analyses (n=283).

Data were gathered about the respondents' main tasks, their experience in education, time allocated to their teaching, and previous participation in instructional development activities. On average, respondents' main tasks were: *Patient care* (50%), *research* (33%), *education (*9%), and *other* (8%). The results for the years of experience in education were divided into *No experience* (1%), *1-5 years* (22%), *5-10 years* (22%), *10-15 years* (20%), and *more than 15 years* (35%). The percentage of time for teaching was divided into *0-10%* (53%), *11-50%* (40%) and *more than 50%* (7%). Prior participation in instructional development activities was divided into *no experience* (53%) and *experience* (47%). About half of the faculty (48%) answered "yes" to the question whether they were willing to participate in instructional development in the future. 40% answered this question with "maybe", and 12% answered "no".

2.3.2 Teachers' preferences

The first two columns of Table 2-1 show the means and standard deviations of the 35 items corresponding to the characteristics of effective instructional development. Means ranged from 2.9 to 4.2. The respondents agreed that most characteristics were important: the majority of the items (23) had a mean score above 3.5, and standard deviations were generally low (average: 0.78, maximum: 1.1). Twenty-six items had a mean score between 3 and 4, and only one item had a mean score below 3. Seven items had a mean score of 4 or higher. These items we took to be the most appealing, as they had the highest scores.

Table 2-1. Medical Teachers' Ratings of the Importance of Characteristics of Instructional Development Activities

Items				Factor loadings		
		M	SD	1	2	3
Factor 1. Facilitated collaboration in educational improvement						
1.	It takes the context in which I work into account (S)	4.1	.79	.34	.06	.09
2.	Sufficient time is provided	4.0	.70	**.43**	.20	-.00
3.	Facilities and materials (resources) are well taken care of	4.0	.61	.39	.13	.13
4.	Collaboration with colleagues is adequate (S)	3.9	.71	**.43**	.19	.11
5.	It includes personal support	3.6	.76	**.44**	.35	-.04
6.	It promotes collegiality	3.5	.88	**.59**	.22	.13
7.	It is scheduled over an extended period (S)	3.5	.98	**.44**	-.20	.11
8.	It takes a variety of forms	3.5	.77	**.49**	-.13	**.46**
9.	It enhances my leadership capacities in education	3.5	.67	.35	.19	.04
10.	It promotes my scientific, inquisitive attitude	3.4	.82	**.47**	.28	.15
11.	It promotes the equality of participants	3.4	.85	**.41**	.08	.29
12.	It accommodates diversity of experience and expertise	3.4	.88	.32	.02	.26
13.	it is site-based	3.4	1.1	.25	-.12	.04
14.	It is driven by the analysis of data about students' learning	3.3	.84	**.42**	.26	.06
15.	It enhances my content knowledge of the subject of teaching	3.1	1.1	.39	.09	-.10
16.	It uses alternative practices other than traditional methods, such as workshops and seminars (S)	3.0	.82	.25	-.04	.10

Items			Factor loadings		
	M	SD	1	2	3
Factor 2. Individual development as a teacher					
17. It improves my competences as a teacher	4.2	.54	-.09	**.47**	.06
18. Systematic and constructive feedback is provided (S)	4.2	.59	.06	**.43**	.11
19. It enhances my pedagogical knowledge	4.1	.67	.10	**.42**	.19
20. It promotes reflection about my teaching	4.0	.58	.00	**.55**	.13
21. It is based on my own and my colleagues' needs	3.9	.65	.12	.31	-.09
22. It includes an evaluation of the effects of the course	3.9	.74	.21	.33	.07
23. It is aimed at the improvement of my organization	3.8	.70	.08	.31	.15
24. I gain insight into the backgrounds and interests of my students	3.8	.65	.20	**.41**	.17
25. It models high-quality instruction, which will benefit my own practice	3.8	.65	.16	.25	.14
26. It includes follow-up after completion	3.7	.69	.28	**.52**	.08
27. Practicing what I have learned has a prominent position (S)	3.6	.79	.27	.28	.12
28. It is ongoing, hence a structural part of my work as a teacher	3.5	.82	.30	**.57**	.20
29. Participation is compulsory (S)	2.9	1.1	-.15	.37	-.04
Factor 3. Evidence-based education					
30. It accounts for current educational demands of the teacher	3.9	.65	.01	**.42**	**.51**
31. It is well designed, following the principles of teaching and learning (S)	3.8	.81	.02	.24	**.64**
32. Multiple methods are used to achieve the objectives (S)	3.7	.73	.24	.05	**.49**

Items			Factor loadings		
	M	SD	1	2	3
33. It provides opportunities for theoretical understanding of the activities	3.6	.83	.08	.18	**.63**
34. It is in line with with reform initiatives on the part of the organization	3.6	.82	.12	.08	**.43**
35. It is based on the best available research evidence in educational research	3.4	.90	.09	.11	**.65**

(S) after an item refers to characteristics of effective instructional development identified in the review by Steinert et al. (2006).

Factor loadings > .40 are displayed in bold. If Items load > 0.40 on two factors, the highest loading is underlined.

The seven items scored as most appealing (rated 4.0 or higher) were: (17) *improves my competences as a teacher*, (18) *systematic and constructive feedback is provided*, (19) *enhances my pedagogical knowledge*, (1) *takes the context in which I work into account*, (2) *sufficient time is provided*, (3) *facilities and materials (resources) are well taken care of*, and (20) *promotes reflection about my teaching*. One item rated less than 3.0: (29) *participation is compulsory*. Three items had a relatively high standard deviation (>1.0): (15) *enhances my content knowledge of the subject of teaching*, (29) *participation is compulsory*, and (13) *is site-based,* indicating that there was relatively more disagreement about their importance.

2.3.3 Identifying underlying dimensions

Factor analyses on the 35 items resulted in ten factors with an eigenvalue higher than 1.0, which together explained 58% of the variance. Using the scree criterion, three factors were identified that explain 31% of the total variance. Columns 3, 4, and 5 show the three factors and the loadings of the items. Most loaded 0.3 or more on at least one factor, with the exception of four items. The factor loadings were used to group the items into three factors. The various items per factor have been ordered from the highest to the lowest mean. Sixteen items loaded highest on Factor 1; thirteen items loaded highest on Factor 2; and six items loaded highest on Factor 3. Four items loaded high (≥ 0.3) on two factors. Factors 2 and 3 contained more items with high mean scores (overall mean: 3.8) than Factor 1 (3.5).

The first factor was somewhat heterogeneous in character compared to the second and third, which were easier to label on the basis of the items that loaded high on these factors. We labeled the three factors as follows: (a) *facilitated collaboration in educational improvement,* (b) *individual development as a teacher,* (c) *evidence-based education*. Cronbach's Alpha was calculated for the sixteen items that loaded highest on factor 1, the thirteen items that loaded highest on factor 2, and the six items that loaded highest on factor 3. Cronbach's alphas for the factors were 0.76, 0.73, and 0.76, respectively.

2.3.4 Facilitated collaboration in educational improvement (Factor 1)

Factor 1 is somewhat heterogeneous, and combines items that focus on the design of the instructional development activities with items related to the interaction between colleagues. Examples are a number of items on collaboration and interaction with colleagues, such as the highest-loading item: (6) *it promotes collegiality*; items that relate to the form instructional development takes, such as (8) *it takes a variety of forms*; and items (2 and 3) that refer to resources such as materials and time. However, some items within this factor describe characteristics that are not obviously related to the design of instructional development, such as (9) *it enhances my leadership capacities in education,* and (10) *it promotes my scientific, inquisitive attitude.*

Highly rated items that are combined in this factor (mean ≥ 4.0) are items 1, 2, and 3. They indicate that sufficient resources should be available (2 and 3). The high mean of item 1 indicates that these medical teachers consider it important that in the design of instructional development attention is paid to the context in which they teach.

2.3.5 Support for individual development as a teacher (Factor 2)

Factor 2 contains items that, in general, refer to characteristics of instructional development that promote individual development as a teacher. Learning from one's own teaching experiences by means of reflection and feedback is important. This learning takes place continuously. Items that load high are: (17) *improves my competences as a teacher*, (20) *promotes reflection about my teaching*, (28) *is ongoing, hence a structural part of my work as a teacher*, and (26) *includes follow-up after completion*.

Mean scores of the items are relatively close together. Only one item on this factor had a low mean score (mean ≤ 3.0): (29) *Participation is compulsory*.

2.3.6 Evidence-based education (Factor 3)

Most items that load high on this factor relate to using the available evidence as a foundation for instructional development. High loadings were: (35) *based on the best available research evidence in educational research*, *(31) well-designed, following the principles of teaching and learning*, and (33) *provides opportunities for theoretical understanding of the activities*. Mean item ratings on this factor were comparable.

2.3.7 Differences between groups of teachers

The teachers were divided into groups on the basis of main task, teaching experience, percentage of time allocated to teaching, and earlier participation in instructional development. Individual teachers were given scores based on their mean score on every factor. Analyses of variance were carried out to identify differences between the groups of teachers in scoring the items. No significant differences were found between the groups.

2.4 CONCLUSIONS AND DISCUSSION

2.4.1 Appealing characteristics of effective instructional development

The aim of the study described in this chapter was to identify which characteristics of effective instructional development were most appealing to medical teachers, and to see whether underlying factors could be found. The three factors identified were: (a) facilitated collaboration in educational improvement, (b) individual development as a teacher, and (c) evidence-based education (Table 2-1).

In our study characteristics of effective instructional development derived from the review of medical education literature by Steinert et al. (2006) were combined with characteristics identified by Guskey (2003) in his review of the literature on instructional development outside the medical education context. The results described in this chapter show that the medical teachers perceived items from both reviews as important. Combining the two reviews resulted in a broader and more extensive list of characteristics that were appealing to medical teachers who were considering participation in instructional development than if we had selected just one of them. This shows that, as advised by Steinert et al. (2006), combining research findings from medical education with findings from research outside medical education was indeed helpful and may enhance the quality of medical educational research, because additional information will become available that can be used in the design of instructional development.

There was high agreement between the respondents on the importance of the characteristics of effective instructional development. Most items were rated high. Seven characteristics were found to be relatively more important than the others. Many of the items that were perceived as relatively important were related to the improvement of teaching knowledge and skills, and to practical design issues such as taking the context in which teachers work into account or providing sufficient time and resources. Our findings are in line with those of McLeod et al. (1997), who also found that improving (lecturing) skills was the most popular topic for instructional development. Other items that were rated as important were related to interaction (providing systematic feedback, collaboration, and promoting reflection). Such interactions may lead to new ideas on teaching, and to changes in teaching practice (Taylor, Tisdell, & Gusic, 2007).

Three items had a relatively high standard deviation (>1.0), implying that opinions regarding these items were widely divergent. These items, which also scored low, were: (13) *is site-based, (29) participation is compulsory,* and (15) *it enhances my content knowledge of the subject of teaching*. The heterogeneity of scores can be explained by personal preferences (first item), tension between learning and busy everyday practice (second), and possible unfamiliarity with the idea that content knowledge could include knowledge on how to teach specific content to students (third). The third item may need further clarification to the respondents, explaining that it relates to *pedagogical* content knowledge (PCK) of the subject taught. This pedagogical content knowledge, as mentioned by Shulman (1986), includes (a) teachers' knowledge of specific conceptions and learning difficulties, and (b) teachers' knowledge about relevant teaching strategies. Thus, it covers both a specific subject area (e.g., medicine) and the way the central concepts (e.g., circulation system) should be taught. This clarification is in line with Skeff et al. (2007), who expect that including PCK in medical instructional development programs will enhance the contribution those programs can bring to the educational process.

2.4.2 Differences between groups

The analyses of variance did not reveal (significant) differences in preferences regarding the three factors depending on the various background variables such as medical teachers' main tasks, time allocated to teaching, or amount of experience. This means that although there are differences in time spent on and experience in teaching, and differences in main tasks (e.g., education, research, patient care), these do not lead to significantly different preferences. This implies that it may be assumed that the differences in perceived importance between teachers do not depend on these kinds of characteristics, but originate from more personal and individual differences. This is also in line with Stenfors-Hayes,

Weurlander, Dahlgren and Hult (2010), who found that different medical teachers perceived different factors in instructional development as either a barrier or an opportunity. Instructional development that caters for individual teachers is therefore preferable to one-size-fits-all concepts (Loucks-Horsley et al., 2003), for example a program taking into account teachers' individual learning styles (c.f., Berings, Poell, & Simon, 2005). Including the recommendations above may be important for the design of instructional development that is both motivating and effective.

2.4.3 Limitations

The response rate of 41% in this study is slightly better than the mean response rate of 39.6% found in a meta-review of web- or internet-based surveys (Cook, Heath, & Thompson, 2000), and also higher than what Kaplowitz, Hadlock and Levine (2004) and Sheenan (2006) report in their studies; they found response rates of 21 % and 24%, respectively. Sheenan (2006) found that response rates had decreased significantly since 1986, from 62% to 24% in 2000. As we carried out this research in only one medical school, and the response rate of 41% is relatively low, we have to be careful with our conclusions, but we expect that our results could be comparable for other medical schools because of similarities in curriculum and organization of the various schools.

2.4.4 Implications and suggestions for further research

In the study described in this chapter we investigated the perceived importance of 35 characteristics of effective instructional development. As most items were rated moderately to highly important, we recommend taking all 35 items (Table 2-1) into account in instructional development programs, with the emphasis on the items rated as relatively most important. Using the results found by Guskey (2003) for the more general context seems to be a useful addition to medical research.

In this chapter discussed the perceived importance of evidence-based characteristics for medical teachers. We expect that the more instructional development is designed according to the teachers' preferences, the more there is a chance for it to have an impact and to have more teachers willing to participate. In future research it would be interesting to study instructional development programs (new or current) that take the results described in this chapter into account during the designing process.

Chapter 3

Using teacher educators' practical knowledge
to select characteristics
of effective instructional development

3. Using teacher educators' practical knowledge to select characteristics of effective instructional development[3]

Characteristics of effective instructional development have been identified in the literature. Incorporating those characteristics in the design of instructional development can have a positive impact on the quality of this development. The aim of the study described in this chapter was to determine which of these characteristics, according to teacher educators, are most relevant for the design of actual instructional development in medical schools. This was done by using teacher educators' practical knowledge: we asked them to identify characteristics and describe effective instructional development programs in their own medical school. Interviews were conducted with teacher educators involved in instructional development in all eight medical schools in the Netherlands. First, they were asked to list which of the 35 effectiveness characteristics identified earlier they considered most relevant. Second, they were asked to describe effective instructional development programs, so that they could explicate practical knowledge that was relevant in their work context and we could derive additional characteristics from their descriptions.

A total of fifteen characteristics were identified: nine characteristics from the list of features that were rated most relevant by the teacher educators, and six additional characteristics that we identified from the interviews about effective instructional development. Examples of the characteristics selected are: providing systematic and constructive feedback, improving pedagogical knowledge, and reserving sufficient time for instructional development.

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3.1 INTRODUCTION

Instructional development is a relatively young domain in educational research (Sparks & Loucks-Horsley, 1989). In the early 1970s it started from a growing concern about the effectiveness of in-service instructional development. Nearly all research showed unanimous dissatisfaction with the in-service programs for instructional development, but at the same time there was a strong consensus that it was important. Instructional development came of age in the 1980s (Sparks & Loucks-Horsley, 1990), but has been changing again since then. Sparks and Hirsh (1997) describe various "shifts" that took place in this domain: (a) from individual development to a combination of individual and organizational development, (b) from a fragmented plan to a clearer, more coherent strategic plan, (c) from a focus on teachers' needs and satisfaction to a focus on student needs and learning outcomes, (d) from training conducted away from the job to multiple forms of job-embedded training, (e) from a focus on generic instructional skills to a combination of generic and content-specific skills, (f) from teacher educators who function as trainers to developers who provide consultation, planning, and facilitation as well as training, and (g) from instructional development as a "frill" to instructional development as an indispensable process.

These changes, detected in general education, are also visible in medical education. McLean, Cilliers and Van Wijk (2008) divided the progress of instructional development in medical education into four decades. In the 1970s instructional development programs were set up as teacher education in which student ratings and written feedback were important. In the 1980s cognitive theories were the driving force in medical education, and teachers were expected to be process as well as content experts. Programs were set up as skills training that included video-assessment. In the 1990s social learning theories were important, and medical teachers took on ever more roles and responsibilities (e.g., as teachers, clinicians, and administrators). Instructional development programs were set up to facilitate student learning, to develop the function of teachers as role models, and to improve assessment measures. These programs also included peer coaching. From 2000 onwards the major trend was professionalism (e.g., patient-centeredness, cultural competence), in which teachers were expected to develop as competent professionals. Instructional development programs were tailored to individuals and focused on measurable outcomes, teaching portfolios, and medical educational research skills.

3.1.1 Available knowledge-for-practice on instructional development

A large body of literature on instructional development programs and their effects is available. Various reviews state that various instructional development

programs differ in their effects on teachers (e.g., Bloom, 2005; Prebble et al., 2004; Steinert et al., 2006; Stes, Min-Leliveld et al., 2010; Weimer & Lenze, 1997; Wood, 1998).

Designing instructional development programs that are in line with what is known from research can improve the effectiveness of the programs. These research results are called *knowledge-for-practice*, and are based on the literature (see Section 1.3.3. for more explanation). Relevant knowledge-for-practice is available on teachers' needs or preferences (Foley & Gelula, 1997; McLeod et al., 1997; Steinert et al., 2006), and on relations between instructional development programs and the quality of teachers. Many studies are available on how to increase the effectiveness of instructional development programs (e.g., Desimone, 2009; Guskey, 2000; Guskey, 2003; Hawley & Valli, 1999; Loucks-Horsley et al., 2003; Prebble et al., 2004; Steinert et al., 2006). In the review by Kennedy (1998) a relation between the content of the program and teachers' learning was suggested. In her research, Kennedy did not find a link between the format of a development program and teachers' learning. The importance of content in the design of instructional development programs was also pointed out by Meiers and Ingvarson (2005). Longer-lasting instructional development programs in medical education seem to have a long-term impact (e.g., Gozu et al., 2008; Simpson et al., 2006). Knight, Carrese and Wright (2007) showed that a great majority (82%) of the 242 medical teachers that had attended a 10-month program of one half day per week reported an impact on their professional life in either their intrapersonal or their interpersonal development, their development as a teacher, or their career. This effect was long-lasting as well: six to thirteen years after completing the program the teachers were more likely than the control group (non-participants) to report having developed and implemented curricula in the past five years, and having performed a needs assessment when planning a curriculum. They also rated themselves higher on developing, implementing, and evaluating curricula (Gozu et al., 2008).

Knowledge-for-practice, however, is often developed without taking context or specific conditions into account. Professionals such as teachers and teacher educators do not always see the relevance of the research results. They find it difficult to implement the results reported in the literature when designing instructional development programs in their institutions. Writers of professional literature and reports can to some extent bridge this gap, as they popularize and summarize the literature (e.g., Garet, Birman, Porter, Desimone, & Herman, 1999; Hill & Cohen, 2005; Sanders & Ardts, 2008). There are also a few research journals that reserve space for some "more easy-to-use articles", such as the 'Twelve tips series' in *Medical Teacher* (e.g., (Ramani, 2006; Ramani, Gruppen, &

Kachur, 2006), or the special editions of the journal *Medical Education*, called the "*Clinical Teacher*™" (e.g., Salerno-Kennedy, Henn, & O'Flynn, 2010).

3.1.2 Taking into account teacher educators' practical knowledge

Besides the knowledge-for-practice derived from literature, teachers and teacher educators also have personal knowledge about teaching. This knowledge can be described as practical knowledge (knowledge-in-practice). Professionals have this knowledge as a result of their experience as trainers and their reflections on this experience (Fenstermacher, 1994). Meijer et al. (1999) defined this knowledge as knowledge and beliefs (about teachers' teaching practice) that underlie teachers' actions. They stated that this knowledge is personal, related to context and content, often tacit, and based on (reflection on) experience. Meijer et al. (1999) identified three types of practical knowledge: (a) knowledge of subject matter, (b) knowledge about the learners, and (c) knowledge about how those learners learn and understand. Although practical knowledge is related to individual experiences and context, it includes elements that are shared by all teachers or groups of teachers (Verloop et al., 2001).

In this study we focused not on the medical teachers, but on the teacher educators of those medical teachers, i.e., on teacher educators' practical knowledge of teaching. They have knowledge and beliefs that underlie their teaching in instructional development programs, for example on how to teach medical staff in specific programs. They have experience of what works well (e.g., best practices) and they are also aware of the challenges inherent in designing instructional development programs within the specific medical context.

3.1.3 Research question

In this study we intended to add to the available body of knowledge by combining teacher educators' practical knowledge on best practices with the available literature about effective program characteristics. This was done in order to select characteristics of effective instructional development programs that are considered relevant in the specific context, and to obtain descriptions of those characteristics. Such an integration of knowledge-in-practice of the teachers (educators) with knowledge-for-practice as derived from the literature could lead to a more profound knowledge base of teaching (Verloop et al., 2001).

Our research question was:

> *Which characteristics of effective instructional development do teacher educators consider most relevant when designing actual instructional development programs in medical schools?*

3.2 METHOD

In all medical schools (n=8) in the Netherlands we conducted interviews with experts on the design of medical instructional development programs. These experts were teacher educators that were members of the special interest group on instructional development of The Netherlands Association for Medical Education (NVMO), and who were also responsible for instructional development in their medical schools. They were mostly involved in the training of medical teachers.

The interviews (see Appendix C for the protocol) with the teacher educators in the eight medical schools were conducted in 2008. In general the interviews took from one hour to one hour and a half. In order to elicit the practical knowledge of the teacher educator two strategies were used in these interviews. First, the teacher educators were explicitly asked to select, from a list of 35, those characteristics that they considered the most important/ relevant in their everyday practice. Second, they were asked to describe effective instructional development programs in their own medical school, using a 'best practice' (see Section 3.2.2), in order for us to identify possible (additional) relevant characteristics. In two cases the teacher educator was not the course leader of the specific best practice he or she had selected; in those cases the course leaders were also interviewed.

3.2.1 Identifying relevant characteristics

The teacher educators were explicitly asked to select (at least) three characteristics that they considered most important and relevant for the design of instructional development programs in their everyday practice. They made selections from a list of characteristics of effective instructional development programs that they had received before the interview was conducted.

These characteristics were based on the combination of the 9 characteristics identified by Steinert et al. (2006), and the 21 characteristics derived from Guskey (2003). This resulted in a list of 35 effectiveness characteristics, as presented in Appendix A. The procedure for constructing this list has been reported in Chapter 2.

To identify the characteristics the teacher educators regarded as the most relevant when designing effective instructional development programs we used a specific algorithm. In this algorithm a total of 100 points were to be distributed over the characteristics selected by every medical school. The characteristics that had the highest total scores were selected for the final list. If teacher educators chose more than three characteristics the additional characteristics were taken into account, but counted for only half.

3.2.2 Description of best practices

An additional strategy to gauge teacher educators' practical knowledge was to ask them to describe effective instructional development programs in their own words. We expected that asking them to describe a practical example from their own instructional development practice would enable them to explicate practical knowledge that was relevant in their own professional practice, and was not explicitly connected to their choices from the earlier list. As indicated in the introduction to this chapter, this knowledge-in-practice was seen as a valuable complement to the existing knowledge from the literature (knowledge-for-practice). The teacher educators were asked how they would ideally like to design instructional development programs in their own context, and to describe a selected best practice from their own medical context. The best practice had to be a program in the medical school selected by the interviewee, because it had to be an example of a current practice that, according to the respondent, was "effective", meaning that, in his or her view, the participating teachers learned from it.

All interviews were summarized and sent back to the interviewees for a check. After minor revisions all interviewees approved the summaries. Subsequently, the interviews, and specifically the descriptions of the design of the instructional development program, were coded using the program Atlas.ti. All sentences or sequences of sentences that related to a specific characteristic were coded, using a coding scheme consisting of the 35 characteristics of effective instructional development programs, with the possibility to add new codes on the basis of the analyses. During the process a first and a second coder discussed the results regularly; any differences were solved by reaching a consensus. No new characteristics additional to the 35 already incorporated in the coding scheme were found in the interviews.

Characteristics that were explicitly selected, and characteristics that were added because teacher educators described them often (>20 statements) in the interviews, were combined to form a final list of characteristics that are considered relevant to the design of instructional development programs.

3.3 RESULTS

3.3.1 Relevant characteristics as identified by the teacher educators

The teacher educators selected nine characteristics from the list as most important (Table 3-1). Characteristics derived from the review by Steinert et al. (2006) are indicated in the table by (S). For every characteristic, the number of schools at which it was mentioned and the number of statements about it are given (in

brackets). For example, eight medical schools had selected the first characteristic about providing systematic and constructive feedback, and in the interviews 27 statements were identified that could be linked to this characteristic.

Table 3-1. Characteristics Selected by Teacher Educators

Characteristics
1. It provides systematic and constructive feedback (8/27) S
2. It uses alternative practices other than traditional methods, such as workshops and seminars (7/37) S
3. It is based on teachers' needs (7/36) G
4. Practicing what the teacher has learned has a prominent position (7/28) S
5. It takes the context in which the teacher works into account (7/18) S
6. It includes personal support (5/14) G
7. It promotes reflection on teachers' teaching practice (5/12) G
8. It is ongoing, hence a structural part of the teacher's work (3/4) G
9. It provides opportunities for theoretical understanding of the programs (3/3) G

Notes:
S: derived from Steinert et al. (2006) G: derived from Guskey (2003)
In brackets: number of medical schools/number of statements

From the statements in the interviews, descriptions of the characteristics could be derived as identified and discussed by the teacher educators. These descriptions provided us with information about what the various characteristics mean to the teacher educators. Thus, the interviews were used to identify contextualized specifications of those nine characteristics. We will now summarize what the teacher educators said about the nine characteristics in the interviews; if applicable, some summaries are accompanied by illustrative quotes.

1. Systematic and constructive feedback

In all medical schools teacher educators mentioned feedback as important in the interviews. Two different issues were mentioned in relation to providing systematic and constructive feedback. First, interviewees said that practicing feedback skills would develop these skills in the teachers. Second, they stated that teachers would be able to change their behavior with the help of

individual feedback from various stakeholders (students, colleagues, and teacher educators). An illustrative quote from the data:

> Receiving feedback is the only way to advance [in teaching] (…). First, a student or colleague can observe and provide feedback, and later a trainer could be asked. (Albert)

2. Alternative practices

As alternatives to the "traditional" methods the teacher educators mentioned other practices, such as workshops and seminars. Ideas for alternative methods derived from the interviews were: the use of portfolios, observing teaching sessions so that teachers could receive feedback, and the use of new formats such as role plays, individual coaching, peer group sessions, and online sessions (e-learning/blended learning). One of the teacher educators indicated that e-learning was an important part of his selected best practice: these sessions increased efficiency, because the online sessions would reduce the number of contact hours.

3. Based on teachers' needs

Two topics were addressed in the interviews in relation to taking teachers' needs and teachers' competences into account. Teacher educators recommended, first, asking teachers before the program what their learning needs were, and, second that if teachers wished to develop their competences they themselves should be responsible for selecting and requesting the appropriate instructional development programs.

4. Practicing

Teacher educators indicated the importance of practicing new knowledge and skills in instructional development programs. By applying what had been learned, by practicing skills and receiving feedback, teachers would be able to transfer what they had learned to their everyday practice. Two settings for practicing were mentioned: the work context (e.g., through homework) and the instructional development program.

> Teachers are often very quick in thinking that they can do it [teaching]. It is important to let them experience what they can and cannot do. They are often "unconsciously incompetent". They can often talk about it very well (e.g., when they provide feedback), but when they actually have to do it they experience how hard it is. Then they often see what they still need to learn. (Alice)

5. Work context

Teacher educators mentioned that the teachers' work context should be taken into account. They mainly referred to "practical" issues such as taking into account the amount of time teachers spend on research or patient care, and the fact that instructional development should be based on experience on the work floor.

> Clinical teachers are busy with patient care, research, and education. For them you have to design instructional development programs in a flexible way, so that it fits into their daily work, and does not interfere with their other tasks. (Walter)

6. Personal support

Teacher educators mentioned personal contact and support in their interviews. To provide teachers with individual and personal support, teacher educators suggested using individual coaching, mentoring, or personal interviews.

7. Reflection

Teacher educators mentioned that reflecting on teaching can make teachers more conscious of their own functioning in practice, and that they consider it important for improving their own teaching. They suggest that reflection should focus on student learning and that involving colleagues in the process can be a productive strategy.

8. Ongoing

According to the teacher educators, being continuously engaged in constructing instructional development programs ensures that it is a structural part of the teacher's work. This will enhance teachers' continuous growth (e.g., through reflection or repeated attendance).

> The purpose of instructional development should be to improve the way the teacher teaches [in small groups] and to find out how teachers can develop in the organization (…) They should learn to use various sources [colleagues, the literature] so that they can continue to develop as teachers. (Denise)

9. Theoretical background

Explaining the theoretical background of the strategies used in instructional development program helps teachers to understand their purpose. Thus, according to the educators providing opportunities for theoretical understanding of the programs is important in instructional development programs.

> Teachers should not only be taught "the trick". They also have to know why they do something. (Alice)

Table 3-2. Descriptions of Best Practices

Best practice
Short Workshops
Three short (2.5 hours) sessions (over 7 months) on developing assignments for groups of 5 (medical) teachers. The assignments are based on teachers' own needs.
Two-day course (inside 1 month) on basic pedagogical knowledge for a group of 12 clinical teachers. Concrete feedback from students and colleagues, using a case from the participants' everyday practice, is part of the program.
Two-day course (over 6 months) on basic pedagogical knowledge for a group of 18 clinical teachers. Various stakeholders were involved in the design process: educationalists, doctors, and behavioral scientists.
Lesson Observations
An educational advisor observes two lessons (within 1 week) and provides individual feedback to the (medical) teacher. Observation of the actual everyday practice is the key feature here.
Trained students attend one lecture and provide individual feedback to the clinical teacher. This stimulates teachers to take students into account more often during their teaching.
Long trajectories
Certificated trajectory (2 years) on basic pedagogical knowledge for a group of 18 (medical) teachers. It includes workshops, peer group sessions, and individual coaching. E-learning is a important part of the trajectory, and intended to increase the efficiency of sessions.
Trajectory (1 or 2 years) for a group of clinical teachers on basic teaching skills for small-group teaching. It includes group sessions, individual sessions, and coaching. Exchange of experiences is important. This program is still in the planning phase.
Certificated trajectory (1 or 2 years) in which individual (medical) teachers construct a portfolio on their teaching practice, including evaluation forms, lesson plans, feedback, reflection, and description of instructional development programs attended. The trajectory is compulsory for new teachers, and the portfolio needs to be renewed every 5 years.

3.3.2 Best practices

In every medical school the teacher educators selected a best practice as an example of a successful instructional development program carried out in real day-to-day medical practice. Table 3-2 shows the best practices selected. These could be divided into three groups: (a) short workshops, (b) lesson observations, and (c) long trajectories. Three of the practices selected were classified as short workshops: a specific topic was treated for a group of teachers. Two best practices could be described as lesson observations: an educational advisor or a student observed a specific lesson given by a teacher and provided individual feedback. The last three best practices could be classified as long trajectories: teachers participated for a long period (1 or 2 years) in a varied instructional development program, which could include portfolios and group as well as individual sessions.

Teacher educators reported that teachers were enthusiastic about the best practices selected, and generally learned from them. However, not all teacher educators were able to say for sure if teachers had also changed their teaching behavior, or if the program had had an impact on the students.

3.3.3 Additional characteristics identified in the interviews

The descriptions of effective instructional development programs in the context of the above-mentioned best practices were used to identify additional characteristics that teacher educators considered relevant, and that had not explicitly been selected during the process described in Section 3.3.1. On the basis of the number of statements made (>20), six additional characteristics were identified (Table 3-3).

Table 3-3. Characteristics Identified in the Interviews

Characteristics	
1.	It enhances teachers' pedagogical knowledge (8/36) G
2.	Sufficient time is provided (8/26) G
3.	Multiple methods are used to achieve the objectives (7/25) S
4.	Participation is compulsory (7/21) S
5.	Facilities and materials (resources) are well taken care of (7/21) G
6.	Collaboration with peers is effective (6/21) S

Notes:
S: Derived from Steinert et al. (2006) G: Derived from Guskey (2003)
In brackets: number of medical schools/number of statement

1. Pedagogical knowledge

Three points were mentioned concerning pedagogical knowledge. First, teacher educators described ways of using specific pedagogical theory in the instructional development programs; second, they talked about improving the link between theory and practice in the instructional development programs; and third, they talked about which specific topics would be interesting to address in the program. This third point was raised many times by the teacher educators; these specific topics included for example assessment, feedback, and small-group teaching.

2. Time provided

Teacher educators in all medical schools addressed the importance of taking the time factor into account in instructional development programs. They gave suggestions for scheduling instructional development programs. For example, teacher educators should be flexible, part of the program should be put online, and half-day sessions were recommended that would be scheduled in the afternoon or evening.

> Part of the theory can be offered using the internet (…). This makes it possible to shorten the [face-to-face] session. A session should not last more than half a day. (Albert)

3. Various methods

A wide variety of methods were recommended for inclusion in the design, such as workshops, role-playing, and e-learning. Moreover, teacher educators emphasized the need to combine methods in order to make them more effective.

> Coaching is the cement between the various parts [of the course], resulting in an integrated package. (Ina)

4. Participation is compulsory

Teacher educators mentioned two ways in which the commitment of teachers participating in instructional development programs could be enhanced. One way is to stimulate teachers to have a positive attitude (e.g., motivation) to learning. Another way is to make the program compulsory by means of accreditation points or pressure from the organization.

> You have to make it compulsory, otherwise teachers won't come. (Denise)

5. Resources

Taking resources (facilities and materials) into account was mentioned many times by the teacher educators. They mentioned for example the importance of

a professional organization that communicates well (e.g., website), good catering (e.g., tea and coffee), and well-written teaching materials.

> The logistics of the instructional development trajectory should be professionalized: information about the courses and materials as well as registration should be handled via a website. (Albert)

6. Collaboration

Collaboration with peers was reported by the teacher educators as a good way to share experiences and ideas with others. According to the teacher educators the teachers can learn from these exchanges.

> Exchanging [ideas] with others is important. Teachers can tell each other how they work and what difficulties they experience, and give examples from their day-to-day work. (Denise)

3.4 CONCLUSIONS AND DISCUSSION

The aim of the study described in this chapter was to identify which characteristics of effective instructional development were considered most relevant for the design of instructional development programs in medical schools. We did this by using teacher educators' practical knowledge, asking them to select characteristics and to describe an effective instructional development program in their own medical schools.

Nine characteristics were selected (Table 3-1) by the teacher educators from an existing list of characteristics of effective instructional development programs. In all medical schools, teacher educators mentioned systematic and constructive feedback as relevant in the design of instructional development programs. They addressed the development of teachers' feedback skills, and indicated that teachers were indeed able to change their behavior as a result of receiving individual feedback. Alternative practices such as blended learning were also mentioned by almost all medical schools as very relevant. This is in line with Bos, Van Batenburg and Molenaar (2010), who found that medical teachers were willing to participate in those courses, as they would fit well into the medical context, e.g., fit their busy schedules (Dede, Ketelhut, Whitehouse, Breit, & McCloskey, 2009). Teacher educators indicated that it was also important to base instructional development on teacher's preferences (cf. Chapter 2), and that practicing in the working place should have a prominent position.

Interestingly, characteristics (8) "it is ongoing" and (9) "it provides opportunities for theoretical understanding" were selected by the teacher educators as most relevant, but during the interviews only three educators described these in more detail. It is possible that teacher educators are aware of the importance of these characteristics, but find it difficult to implement

them in practice. It may be the case that organizational constraints impede the implementation of instructional development that is ongoing, and that teacher educators find it difficult to integrate their pedagogical knowledge into the activities.

In every medical school the teacher educator selected a best practice as an example of an existing, effective instructional development program. Six additional characteristics were derived from the interviews, in addition to the nine already selected. We expected that asking teacher educators to describe a best practice would enable them to explicate new practical knowledge that they found to be relevant in their own professional practice, in addition to the characteristics they had explicitly chosen from the list. In describing their best practices teacher educators in all medical schools mentioned that enhancing teacher's pedagogical knowledge and providing sufficient time were important. The number of statements in the interview about teachers' pedagogical knowledge was 36. This seems to be in line with Kennedy (1998), who mentioned that the content of a program was more important than its format.

Of the six characteristics, teacher educators mentioned collaboration slightly less frequently than the other aspects. According to the literature, sharing experiences with others is an important feature of learning (Prebble et al., 2004; Taylor et al., 2007). This feature may be more difficult to implement in current forms of instructional development, which might be the reason that teacher educators did not mention it often in their interviews.

Using teacher educators' practical knowledge (knowledge-in-practice) to connect the available literature (knowledge-for-practice) to their own context resulted in a list of fifteen characteristics that, according to the teacher educators, should be taken into account when designing more relevant and effective instructional development programs. The characteristics derived from both Steinert et al. (2006) and Guskey (2003) proved a good basis for this. Characteristics from both reviews were selected and used in the descriptions of effective instructional development programs.

3.4.1 Suggestions for further research

Teacher educators did not mention the student perspective much in their interviews. This is interesting, as students are the target group of teaching and can be a useful source of information for teachers. From the literature we know that student ratings (as well as other feedback from students) can provide teachers with feedback, advice, and support (Prebble et al., 2004) to improve their teaching. From research we also know that student evaluations can be useful, valid, and reliable (Menges & Austin, 2001). In further research it would

be interesting to investigate why the student perspective is not mentioned as important for effective and relevant instructional development programs.

The results presented in this chapter can provide teacher educators with some guiding principles for designing and implementing programs. Yet, we also agree with the following statement from McLean et al. (2008, p. 580): "We are far from being able to provide the ideal program as there is no *quick fix* or *one-size-fits-all* model of instructional development. Each school will need to work within its unique context". We therefore believe that in every school the practical knowledge of relevant professionals can help to develop this "ideal instructional development program".

In future research it would be interesting to examine new or existing instructional development programs in which these findings are taken into account during the design process, and thus also pay attention to the effectiveness of the instructional development program.

Chapter 4

Characteristics of effective instructional development:
a framework for analyzing
and improving short courses

4. Characteristics of effective instructional development: a framework for analyzing and improving short courses[4]

Short training courses, such as workshops, are the most popular formats for instructional development in higher education, because they fit in well with the time-schedule, preferences, and work context of the staff. Although these short courses are often referred to in the literature as ineffective and unproductive, research findings also include positive effects. Studying a short course that is considered effective in more detail might yield a better understanding of the reasons for its success, and in general will provide insights into what makes a course successful. For that purpose we checked a successful short training course against a set of characteristics of effective instructional development as derived from the literature. We found that most of those characteristics were incorporated in the design of that course. We then developed a new course, also incorporating the characteristics that were missing from the training course we had analyzed. An evaluation questionnaire on the effectiveness of this additional program indicated that after the new course respondents were less satisfied, but nevertheless reported having learnt much: they had been able to change part of their behavior, and the learning climate in their everyday practice had improved.

4 Submitted in adapted form as: Min-Leliveld, M.J., Van Tartwijk, J., Verloop, N. & Bolk, J.H. Characteristics of effective instructional development: a framework for analyzing and improving short courses.

4.1 INTRODUCTION

In higher education, most teachers do not receive initial teacher education, have a high degree of autonomy in the way they teach, and are busy doing research (Visser-Wijnveen, 2009), which leaves teaching their second priority. At the same time teachers have to respond to an increasingly diverse student population, address issues relating to standards of quality, and manage a growing international competition. In general, they have to be "doing more with less" (Lueddeke, 2003). To support teachers in their regular teaching instructional development programs are important. Such programs can have a positive effect on teachers' teaching (Coffey & Gibbs, 2000), and so influence their students' learning (Floden, 2001; Menges & Austin, 2001; 2004).

In the higher education context many instructional development programs take the form of short training courses, such as workshops, seminars, and (short) training programs (Knight, Tait, & Yorke, 2006; Prebble et al., 2004), as these fit well into the time schedule and work context of the participants. Those short training courses usually take place outside the participants' normal work context and do not include all colleagues from the participants' primary work groups (Prebble et al., 2004). Teachers in higher education are generally satisfied with those courses (Steinert et al., 2006).

4.1.1 Effectiveness of short courses

Research findings about the effectiveness of short courses contradict each other. Both Menges and Austin (2001) and Weimer and Lenze (1997) concluded in their literature reviews on teaching in higher education that research evidence supporting the impact of short courses on the quality of teaching was weak. However, in more recent reviews positive effects have been identified for such courses. Stes, Min-Leliveld et al. (2010), for instance, reported positive results at the various levels developed by Kirkpatrick (1994). In the review of the medical education literature by Steinert et al. (2006) positive effects were reported as well. They found that the great majority (more than 70%) of the 53 articles reviewed reported that both longer and shorter courses had effects on the Kirkpatrick levels of Reaction, Learning, and Behavior (see Section 2.1.1. for an explanation of the four levels). In 19% of the articles reviewed the effects were also reported at the Results level (student learning). When we specifically look at short courses, the same pattern can be distinguished: most of the articles reported effects at the levels of Reaction, Learning, and Behavior, and a small number also identified effects at the Results level.

One of the reasons why differences in the effects of short courses are found is that different definitions of short training courses are used in the

literature. For example, Steinert et al. (2006) made a sharp distinction between workshops, short courses, and seminar series, whereas Prebble et al. (2004) grouped these together under the single term "short training courses". Hence, results from the various reviews are not fully comparable. Another reason for the differences in the effects of short courses might be that many studies (e.g., Notzer & Abramovitz, 2008; Pololi & Frankel, 2005; Quirk et al., 1998; Skeff et al., 1998), including some of the reviews mentioned above, focus on the impact of instructional development programs without linking these effects to the specific design characteristics of the program. So, it is possible that differences in the effectiveness of short courses could have been explained by differences in design characteristics of those courses. Details of the instructional development program in question are not always available, and can therefore not always be taken into account when differences in impact of the programs are analyzed.

4.1.2 Increasing the effectiveness of instructional development courses

In the literature results are available from research on how to increase the effectiveness of (short) instructional development courses (e.g., Garet et al., 2001; Guskey, 2006; Hawli & Valley, 1999; Loucks-Horsley et al., 2003; Steinert et al. 2006). A way to increase the effectiveness of courses is by improving the transfer of new knowledge and skills to the work environment. Holton, Bates and Ruana (2000) identify three variables that are important in the transfer of knowledge: (a) the ability of participants to transfer the skills they learned to the everyday practice, (b) their motivation to use them, and (c) a work environment that supports the use of these skills. Batt (2010) has studied an instructional development program for teachers in the USA. The purpose of the project was to monitor the effectiveness of the program and to assess the value of cognitive coaching. Quantitative and qualitative data sources were employed, including a knowledge test, surveys, and interviews. Findings indicate that for the workshops to be effective they should include a coaching phase. Results from a large-scale national study (the Eisenhower Professional Development Program) (Desimone, Porter, Birman, Garet, & Yoon, 2002; Garet et al., 2001) indicate that in order to improve instructional development programs the focus should be on a longer duration, as they found the length of the course was more important than the format. They also indicate that among other factors the content of the course, opportunity for active learning, and integration into teachers' daily life were important. In their reviews, both Steinert et al. (2006) and Guskey (2003) identify characteristics of effective instructional development programs. We combined these into a list of 35 effectiveness characteristics. The procedure we used to achieve this was described in detail in Chapter 2.

4.1.3 Overview of the results of our previous study

Figure 4-1 displays the characteristics that were selected by teachers as most appealing when participating in instructional development programs (cf. Chapter 2), and by teacher educators as most relevant for teachers' learning (cf. Chapter 3). This resulted in 16 characteristics of effective instructional development programs. Those characteristics might be used to improve an existing program, i.e., by implementing more effective characteristics. Figure 4-1 shows that six characteristics are overlapping: both teachers and teacher educators selected these. One characteristic was selected by the teachers only. The teacher educators, on the other hand, selected nine characteristics that were not mentioned by the teachers.

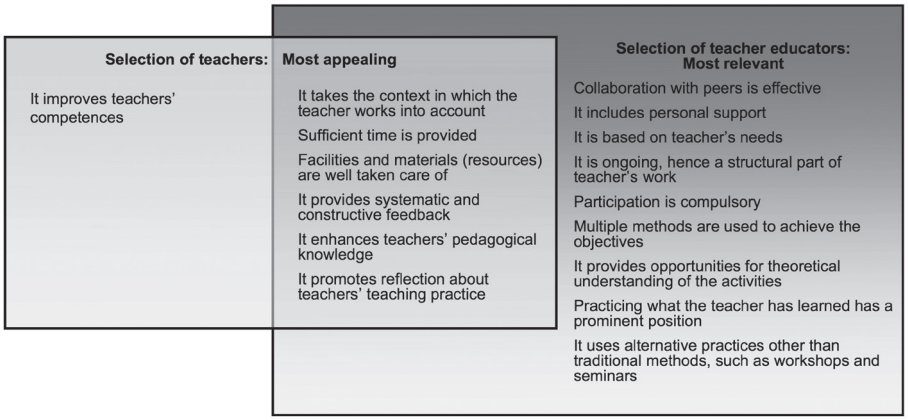

Figure 4-1. Overview of the characteristics selected by teachers and teacher educators

4.1.4 "Train the trainers": an example of a successful short course

Taking into account that short training courses fit well into the higher education context, but knowing that findings regarding their effectiveness are contradictory, we thought it would be interesting to study a successful short training course in more detail. It is especially the characteristics that were considered important for effective instructional development programs by both teachers and teacher educators (Chapters 2 and 3) that can be used to find out to what extent such a successful short training course is in line with those characteristics. The results can then be used to adapt the program in such a way that more of those characteristics are implemented.

In the medical context various successful short courses have been described (Busari, Scherpbier, Van der Vleuten, Essed, & Rojer, 2006; Pololi et al., 2001; Rubak, Mortensen, Ringsted, & Malling, 2008). For this study we selected the successful instructional development course "Train the Trainers". This course is widely used to prepare doctors for their role as a clinical teacher. The Train the Trainers model can be used to train faculty from different hospitals, who then pass it on to medical teachers at their own hospitals (Stratos, Katz, Bergen, & Hallenbeck, 2006). It is increasingly used in medical education (Corelli, Fenlon, Kroon, Prokhorov, & Hudmon, 2007; Green, 2005). Rubak et al. (2008) mention that these courses are designed for postgraduate medical education, and usually include training in specific methods of clinical teaching, supervision, and giving feedback, with the aim of improving doctors' teaching behaviors and the learning climate within clinical departments. These medical education courses are rated as highly satisfactory by participants (Rubak et al., 2008). They are a good example of a regular short instructional development course that is also appreciated by the participants for its short, efficient format.

The course is offered in several countries, in only slightly different forms. In the Netherlands it is taught in almost all medical schools in a comparable form (a two-day course) to medical specialists[5]. Just as in other countries it is an interactive and practical course for a small group of medical specialists, aimed at improving teachers' general pedagogical knowledge and skills by using techniques such as role-playing, presentations, and interactive sessions. Teachers are satisfied with this course, but no published data are available on the effects of the Dutch two-day Train the Trainers course. However, results are available on the effectiveness of the course in other countries. The format that is used abroad is largely comparable to the Dutch version of the course, and therefore we expected these results to be comparable as well. Different studies report short-term positive effects of Train the Trainer courses (e.g., Godfrey, Dennick, & Welsh, 2004; Hewson, 2000; Holmboe, Hawkins, & Huot, 2004; Malling, Bested, Skjelsager, Ostergaard, & Ringsted, 2007). The Danish Train the Trainer course also proved to have delivered a gain in knowledge concerning teaching skills, teaching behavior, and learning climate after 6 months (Rubak et al., 2008).

4.1.5 Research question

In this chapter we will focus on the characteristics of effective instructional development we identified earlier, and relate these to the effectiveness of the Dutch version of the Train the Trainer course and an additional course that we developed ourselves. We will try to answer the following research questions:

5 In some medical schools this course is called "Teach the Teachers".

Can characteristics of effective instructional development be used as a framework by which to understand why a specific short course is successful?

What do participants report to have learned from an additional course that includes all characteristics selected?

4.2 METHOD

4.2.1 The Basic Course

In this study we analyzed the Train the Trainers course (hereafter the *Basic Course*). The Basic Course was organized five times in the autumn of 2008, with a total of 38 participants from the Leiden University Medical Center or an affiliated hospital. The course is an interactive, short, and practical two-day workshop for a small group of medical specialists (8-10 participants per course) that aims to improve the general pedagogical knowledge and skills of participants. On the first day teachers practiced in a microteaching session and discussed theory about adult learning, characteristics of a good teaching, and learning goals. The next day theory about various educational formats was presented. The topic of providing feedback and assessment was also discussed. On this second day participants also had the opportunity practice their skills in role-playing sessions and presentations.

4.2.2 The Plus Course

A supplementary course, to be followed after the Basic Course, was developed by us, using the 16 characteristics of effective instructional development programs found in the previous studies (Figure 4-1). We will further refer to this course as the *Plus Course*. These 16 characteristics were a combination of the lists based on Steinert et al., 2006 and Guskey, 2003 (see Chapters 2 and 3). The main focus of the Plus Course, which participants could attend on a voluntarily basis, was on improving knowledge and skills regarding feedback given by the teacher, and increasing awareness about the role of a teacher. In the program the actual work context was taken into account, and a prominent place was reserved for performing in the participants' daily practice. Participants were able to try out their new knowledge and skills about feedback in practice because of the scheduling over a five-month-period (from January to May 2009). The Plus Course consisted of three workshops and two one-hour web seminars. Various methods were used in the sessions, including alternative practices such as peer group discussions. In the first workshop a specific feedback form was introduced,

and participants practiced using this form by means of video vignettes. This specific feedback form was called *Korte Praktijk Beoordeling* (KPB). This form is a translation of the Mini-clinical evaluation (see Appendix D), which was developed at the American Board of Internal Medicine for the evaluation of residents' clinical skills (Norcini, Blank, Arnold, & Kimball, 1995). Research on the reliability and validity of the instrument is available (Holmboe, Huot, Chung, Norcini, & Hawkins, 2003; Margolis et al., 2006). The KPB instrument can be used to asses seven clinical skills: (a) medical interviewing skills, (b) physical examination skills, (c) humanistic qualities/professionalism, (d) clinical judgment, (e) counseling skills, (f) organization/efficiency, and (g) overall clinical competence. Scoring is done on a nine-point Likert scale: (1-3) unsatisfactory, (4-6) satisfactory, (7-9) superior. The rating form has space for additional comments.

In the second workshop the main topic was the use of 360° feedback, also called 'multiple-source feedback'. This consists of feedback from different perspectives, for instance students, colleagues, and secretarial staff, for an overall assessment of the competences of a medical specialist (in the Netherlands these competences are based on the CanMEDS (2000). An advantage of this method is that it diminishes the "one person/one perspective" bias (Lockyer & Clyman, 2008).

In the last workshop a peer group discussion was organized about ways to provide feedback to students that were identified as "challenging cases". Shaub-de Jong, Cohen-Schotanus, Dekker and Verkerk. (2009) found that peer meetings foster the development of reflection skills, as these gatherings create an interactive learning environment in which learners learn about themselves, their skills, and their abilities as a professional. Interaction with colleagues can stimulate instructional development in several ways: it enhances reflection on teaching practice, establishes a professional discourse community, can raise the standard of teaching performance, and facilitates collaboration (Park, Oliver, Johnson, Graham, & Oppong, 2007).

The two optional interactive web seminars were organized around recent scientific research (first seminar), and a professional publication about feedback (second seminar). Each seminar lasted one hour, and the participants were able to access it from any location. In line with Prestridge (2010), who has shown that discussions with colleagues were an important factor in a change of teachers' beliefs, we also implemented a possibility for discussion in our web seminars.

4.2.3 Participants

The Basic Course was attended by 38 participants, medical specialists in the Leiden University Medical Center or in affiliated hospitals nearby. In addition

to their work with patients and/or research, they also taught students and/or residents.

All participants from the Basic Course were asked at the start if they were also interested in participating in the Plus Course. They were expected to attend all sessions if they wanted to obtain accreditation points, and were informed that research data would be collected during the course. Twelve participants indicated immediately that they were interested in the Plus Course, and were able to attend the sessions on the scheduled dates. Eventually, ten participants completed the Plus Course. Of the two participants that could not complete the course, one moved to another hospital and the other was too occupied with other work to attend all sessions.

The ten participants that completed both courses were representative of the total group of participants in the Basic Course with respect to experience, gender, and type of hospital they worked in. In addition, a dependent *t*-test on the scores of the evaluation questionnaire for the Basic Course did not reveal significant differences between both groups. We therefore conclude that the participants in the Plus Course were representative of the total group of participants in the Basic Course.

4.2.4 Studying the Basic Course by means of a framework

The 16 characteristics that resulted from the previous investigations we used as a framework to study the Basic Course and develop the Plus Course. The teacher educator responsible for teaching both the Basic and the Plus Course was asked which of these characteristics were present in the Basic Course. If applicable, reasons for the presence of certain characteristics were discussed. The main part of the interview focused on analyzing the course. Author and teacher educator together analyzed the Basic Course on the basis of the 16 characteristics, using a five-point Likert scale ranging from 'very poorly implemented' (score 1) to 'very well implemented' (score 5). We discussed the results in order to determine a final score based on a consensus about the extent to which each characteristic had been implemented. On the basis of these final scores characteristics were identified that were well implemented (score 4 or 5), as well as characteristics that needed more attention in the implementation (score 1-3).

4.2.5 Evaluation questionnaire

Using the questionnaire developed by Rubak et al. (2008) to evaluate the Danish Train the Trainer course as a basis, we developed an evaluation questionnaire (see appendix E) by which to measure the perceived effects of the Plus Course. This questionnaire was adapted to the specific situation and format of the Plus Course. Data were collected about the background of the participants (i.e.,

name, experience, number of students) and about the perceived effectiveness of the course, using questions based on Kirkpatrick's four levels (Kirkpatrick, 1994). For the first of these levels (Reaction), participants were asked to indicate their overall satisfaction with the course. The second level (Learning) measured knowledge about constructive feedback. For the third level (Behavior), questions about the actual behavior of the respondents were asked, specifically about the frequency of feedback and supervision in the participants' everyday practice (on a 7-point scale), whether they had adapted their practice on the basis of the course, and if so, why. The last questions regarded the Results level: participants indicated on a 7-point scale to what extent they agreed with statements about the learning climate in their everyday practice.

The evaluation questionnaire was handed out at the end of both the Basic Course and the Plus Course, and participants completed it before the session was closed. We were interested in any differences between results perceived after the Basic Course and after the Plus Course for the various levels in the questionnaire. A dependent *t*-test was carried out to find indications of the significance of those differences.

4.3 RESULTS

In this section we will first discuss which characteristics of effective instructional development were present in the Basic Course, and which characteristics needed more attention. Second, we will describe how we used these findings as a framework to develop the new Plus Course, and discuss its properties. Last, we will report on what teachers learned from the new Plus Course.

4.3.1 Characteristics of effective instructional development in the Basic Course

Using the 16 characteristics of effective instructional development as a framework, we found that a majority (10 out of 16) of the characteristics of effective instructional development were already well implemented (score 4 or 5) in the Basic Course. The other six characteristics were scored as needing more attention in the implementation (score 2 or 3). These six characteristics will be described in more detail below. The first two aspects needing more attention concern the timing and scheduling of the course, the other four are related to the format. Those six characteristics are important for the construction of a new course, as they would need extra attention during implementation.

1. It is ongoing, hence a structural part of the teachers' work

To improve teachers' continuous growth it is important that instructional development programs are ongoing, so that they become a structural part of the teacher's work. The Basic Course was scheduled as a two-day event. During the course many different topics were covered, and teachers stated what they would like to change in their daily work context. Because there was no follow-up session the participants were not reminded of their learning goals. We therefore expect that when the teachers return to their hospitals they will soon be too engrossed in their daily routine to think about what they had intended to change in their work context. Thus, in spite of their good intentions this aspects of the course may not lead to a change in practice.

2. Sufficient time is provided

For an instructional development program to have impact enough time should be available for participants to practice and learn. For this reason we did not consider the two-day format adequate to bring about a change in a teacher's everyday practice. The 12 contact hours of this course could be used more efficiently, for example by other ways of scheduling the course such as spreading it over half days, or by doing part of the activities online.

3. It includes personal support

Personal contact and support can help participants to learn. In the Basic Course the participants were able to discuss their experiences, but there was no specific personal support for them. The teacher educator did not contact the participants personally either before or after the course.

4. It uses practices other than traditional methods, such as workshops and seminars

Besides regular practices, such as workshops, alternative practices could be an additional way to offer a course. The Basic Course was set up as a workshop, but there was more room for active learning than is common in a workshop. In the course only one "alternative" format was used: role playing. Other practices, such as using portfolios to gather information about learning in practice, observation of teaching sessions to provide feedback, online sessions, individual coaching, or peer group sessions were not part of the course.

5. Practicing what the teacher has learned has a prominent position

Practicing in instructional development programs is important. By applying what has been learned, by practicing skills and receiving feedback, the teachers would

be able to transfer what they have learned to their everyday practice. Practicing new knowledge and skills can be done both in the work context (e.g., through homework) and during the instructional development programs itself. In the Basic Course the participants were able to practice some new knowledge and skills in the instructional development course itself, but they did not practice it in their own work context. What teachers did practice in particular was providing feedback to presentation skills to the other participants. This was done in a specific way, which was explained in the course.

6. It provides opportunities for a theoretical understanding of the activities

Explaining the theoretical background of the strategies used in the instructional development program helps teachers to understand the purpose of these strategies. If participants know why they are being taught something, they may be more motivated to use those new techniques in their work context. In the Basic Course many different topics were treated, but the link between the various strategies and the theory was not always evident.

4.3.2 Description of the Plus Course, developed using the Basic Course framework

We used the 16 characteristics (Figure 4-1) as a framework to construct a new course. This Plus Course was based on all 16 characteristics. In this section we present the characteristics of the new course. First, in Table 4-1 we present the characteristics that were identified in the Basic Course as needing extra attention (see previous section/Section 4.3.1). Second, we will describe the other 10 characteristics that are part of the Plus Course (Table 4-2).

Table 4-1. Descriptions of the Six Improved Characteristics

Characteristics
It is ongoing hence a structural part of the teachers' work
In the newly developed Plus Course, the sessions were scheduled over a five- month period with 6-8 weeks intervals between the sessions. Therefore, extra time was available between the sessions for practice in the work context. The different short sessions also allowed for the knowledge and skills acquired to be revised.
Sufficient time is provided
The Plus Course consisted of ten official contact hours consisting of three short sessions of three hours, and one of two one-hour optional web seminars. It was scheduled over a five-month period. Additionally, various assignments had to be carried out in preparation for the sessions.
It includes personal support
The group was small (10 participants), allowing for group discussions and personal questions. The last session was reserved for a peer group discussion, in which the participants introduced a case study from their own practice. There was regular (personal) email contact between the course leader/researcher and participants during the course.
It uses practices other than traditional methods, such as workshops and seminars
Alternative practices besides workshops were used, such as a web seminar that could be followed online, a peer-group discussion, and feedback from students. Technical difficulties with internet access on several hospital computer networks prevented some teachers from participating in the web seminar.
Practicing what the teacher has learned has a prominent position
Practicing in the work context was an important feature in the Plus Course. Participants were required to carry out assignments in preparation for the short sessions. These were constructed around providing feedback to and receiving feedback from their students in the work context. In the sessions the results were discussed with the participants.
It provides opportunities for a theoretical understanding of the activities
In the Plus Course the teacher educator clearly explained why specific activities had been chosen, and discussed the theory behind them. She explained, for example, the theoretical background on peer group discussion and showed that practicing this could be useful in the teachers' own practice.

Ten characteristics from the list of 16 mentioned above were already rather well implemented in the Basic Course. For the Plus Course several adaptations and additions to these characteristics were made. Table 4-2 lists those characteristics.

Table 4-2. Plus Course: Descriptions of the Other Ten Characteristics

Characteristics
Facilities and materials (resources) are well taken care of
The training was held in the regular training rooms in the hospital. No lunch or dinner was provided. Teaching materials were handed out to the participants during the course. This was different from the Basic Course, which took place in a luxury conference location, so this particular characteristic was less well implemented in the Plus Course.
Collaboration with colleagues is adequate
There was interaction among the participants during the course: assignments were discussed in small groups, experiences were exchanged, and in the peer group discussion participants talked about cases from their daily practice.
Participation is compulsory
Teachers who opted for the Plus Course had to complete the course in order to obtain accreditation points. When participants were not able to attend a specific session an alternative assignment had to be completed. The web seminar was an exception to this rule, as it was a first-time experiment. The content of the web seminar was tailored to this optional character, as it provided non-essential but enriching theoretical background material on feedback techniques.
It provides systematic and constructive feedback
Within the Plus Course, feedback was specifically focused on individual participants and on their functioning in daily practice. Students were involved in the various assignments and were asked to provide feedback to their teachers. It was explained that the feedback form could be used to provide feedback to the students. Participants were encouraged to use the form as starting point for interaction between them and the students. Ideally, their interactive feedback should be in line with what Holmboe et al. (2002) present as guiding principles: recommendations are given, the students are allowed to react to the feedback, self-assessment is required of the student, and faculty help trainees to develop an action plan for improvement.

It is based on teachers' needs

At the start of the Plus Course participants were able indicate what they would like to learn, and this was taken into account when selecting specific topics to discuss. In the sessions there were several opportunities to ask specific questions and to discuss relevant issues. The medical curriculum in the Netherlands is currently undergoing innovations aimed at professionalizing supervision of and feedback to students, using specific feedback forms. Participants could choose to attend the optional web seminars according to their needs.

Multiple methods are used to achieve the objectives

To achieve the objectives of the Plus Course much time was reserved in the sessions for discussion and hands-on assignments, e.g., by means of feedback forms and video vignettes.

It takes the context in which the teacher works into account

The Plus Course was scheduled to fit in well with the participants' everyday daily work (short course, at the end of the day, scheduled on different days). The assignments were also specifically focused on the work context; for example, the participants were asked to observe a student and provide feedback, or to ask students for their feedback.

It enhances teachers' pedagogical knowledge

During the Plus Course specific theory on providing feedback to students was discussed. The use of a feedback form and 360° feedback was included, and the results were discussed with the participants in the course.

It promotes reflection on teachers' teaching practice

During the Plus Course participants were stimulated in the last part of each session to reflect on their everyday practice by formulating their learning objectives and reporting whether they had reached those in their regular practice. During the various group discussions participants were also stimulated to reflect upon their everyday practice.

It improves teachers'competences

The emphasis in the Plus Course was on the development of knowledge and skills regarding feedback in the work context. In particular, participants were given the opportunity to practice using a feedback form and were encouraged to ask for feedback from students or colleagues. Theory about the use of a specific feedback form and receiving 360° feedback was provided, together with practical assignments. The optional web seminars provided additional information on recent scientific research, and on a professional publication about feedback.

4.3.3 Reported learning effects of the Plus Course

To evaluate the learning effects of the Plus Course, we collected data on the effects of this instructional development program in relation to the four levels of Kirkpatrick (1994).

For the first level (Reaction) the participants were asked to indicate their overall satisfaction with the Basic and the Plus Courses. The Plus Course was rated significantly lower ($t=2.7$; $p=0.03$) than the Basic Course (Plus Course: $M=3.3$ ($SD=0.9$), Basic Course $M=4.1$ ($SD=0.2$)).

For the second level of Kirkpatrick (Learning), participants were asked to indicate what they considered important features of constructive feedback. No qualitative difference could be found between the answers of teachers that only participated in the Basic Course, and those of teachers that participated in both courses. Some participants answered this question in a general sense in both cases, e.g., "You have to be able to use it [the constructive feedback]" or "it should be realistic and understandable", others answered more specifically both times: "Say what is going well, identify, indicate the points that need more attention, and say how these [points] could be improved" or "It [feedback] should be based on behavior that can be changed". Overall, we found no difference between the Basic and the Plus Courses regarding Kirkpatrick's Learning level.

For the third level, Behavior, two different types of questions were asked. First, participants were asked whether they had changed their behavior as a result of the Plus Course. In addition, they were asked more specifically about the frequency with which they provided feedback to their students. In answer to the first question, nine out of the ten participants reported that they had changed their behavior. They indicated changes in incidence or content of feedback, the structuring of their supervision, the awareness of their role as a teacher, or the interaction with students. They all reported an increase in the frequency of feedback to students after using feedback forms or 360° feedback. Three participants reported a change in the content of their feedback, in particular towards providing more positive feedback, mentioning more specific learning moments, and using the feedback forms in a more structured way. Two participants also mentioned a change in the structuring of their supervision, in particular explicating learning goals and using teaching time more effectively. Two participants reported that they were now more aware of their role as a teacher or role model. One participant indicated that the interaction with his students had increased. Thus, besides changes in their behavior the participants also reported changes related to the Learning level (attitudes and skills): they indicated that they had become more aware of their role as a teacher, and had improved their feedback skills.

The answers to the second type of question, about the frequency of providing and receiving feedback and supervision, are displayed in Figure 4-2. It shows the results of the questionnaires administered immediately after the Basic Course (left), and immediately after the Plus Course (right). The statements are given on the X-axis and the frequencies on the Y-axis. For example, after the Basic Course, for the statement "inquiring about students' prior knowledge and skills" teachers reported a frequency of around twice a year. After the Plus Course this frequency was reported to have significantly increased to 'monthly'. The participants reported a significant increase in feedback from students (t=3.0; p=0.02). The frequency of formulating specific learning objectives also increased significantly (t=3.8; p=0.00), from annually to more than twice a year.

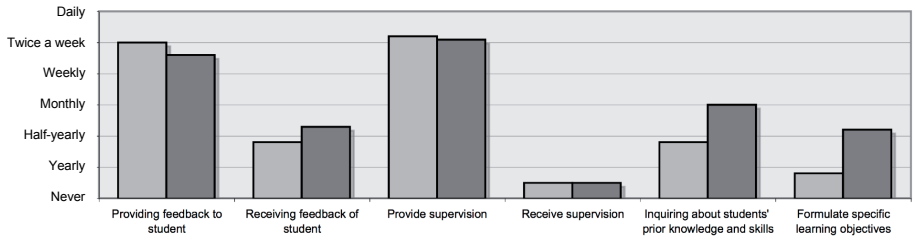

Figure 4-2. Frequencies for the Behavior level
Left: after Basic Course, right: after Plus Course

Results on Kirkpatrick's fourth and final level (Results) are displayed in Figure 4-3. The figure shows the statements as well as the scores given by the participants (from 1: never to 7: always). All statements about the learning climate received higher scores after the Plus Course. It was especially the statements: "the learning needs of the students are fulfilled", and "the students find the feedback from relevant" that showed a large (significant) increase in scores before and after the Plus Course (t=2.3; p=0.04 and t=3.3; p=0.01 respectively).

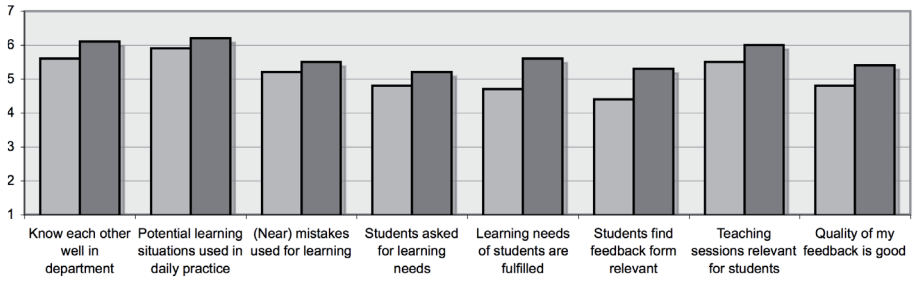

Figure 4-3. Scores for the Results level
Left: after Basic Course, right: after Plus Course

4.4 CONCLUSIONS AND DISCUSSION

In this study we used 16 characteristics, derived from the literature and considered by teachers and teacher educators to be important (cf. Chapters 2 and 3), to analyze a successful short course. On the basis of these characteristics we developed an additional course, the Plus Course, and studied its effectiveness. After the newly developed Plus Course participants reported negative changes for Kirkpatrick's Reaction level and positive changes on the Learning (attitude, skills), Behavior, and Results levels (Kirkpatrick, 1994). We will now discuss the two research questions in more detail.

Can characteristics of effective instructional development be used as a framework by which to understand why a specific short course is successful?

In this project the 16 characteristics of instructional development derived from the study described in Chapters 2 and 3 were used as a framework to study the successful Basic Course. It turned out that the majority of those characteristics (10 out of 16) were already well implemented in this course. The characteristics selected by the teachers (see Chapter 1) were especially well represented. Apparently, the Basic Course has not only many characteristics that in research have been found to contribute to effectiveness, but also characteristics that make it attractive to teachers.

Six characteristics were identified that needed more attention in the implementation of the new course. These six characteristics were related to the format of the course (personal support, use of alternative practices, inclusion of theory, and practicing) and the time needed to be reserved for following the course (sufficient time, and ongoing).

We expect that the characteristics we identified as less well implemented will also be the characteristics that need attention in other short courses in higher education, because of the similar format of those courses (short, much theory). Most of the characteristics that need attention have to do with the format of the course. Because of the short time in which regular short courses are usually scheduled, these characteristics will be difficult to implement.

Knight and Yorke (2006) typify short courses as a so-called "event-delivery method", in which a specific topic is delivered in a one-time event. Even though this method can lead to learning, embedding the new knowledge in everyday practice remains difficult. Practicing in the workplace as part of the program would facilitate this embedding. This was also one of the characteristics that was not yet implemented well in our Basic Course. Clark et al. (2004) mention that follow-up was lacking in many courses. This is in line with the characteristic according to which instructional development programs should be ongoing in

order to become a structural part of the work as a teacher. As we know now that teachers' preferences are often not taken into account in instructional development programs (e.g., Clarke & Hollingsworth, 2002; Loucks-Horsley et al., 2003), we recommend including the characteristic "promotes personal support", which could lead to programs that are closer to those preferences.

In conclusion, we found that the 16 characteristics could indeed be used as a framework by which to understand why the basic Train the Trainer course is successful, as the majority of the characteristics are well implemented in this course.

What do participants report to have learned from an additional course, which includes all characteristics selected?

The Plus Course had to be adapted to include especially those characteristics that were not well implemented in the Basic Course. In the perception of the participants the Plus Course was effective for the Learning, Behavior, and Results levels (Kirkpatrick, 1994). Our results are in line with those of Ingvarson et al. (2005), who found that if instructional development programs were in line with characteristics of effective instructional development derived from the literature, they were generally also rated as the most effective programs. The results of our adaptations are also in line with the literature about the effects regarding interventions over time (e.g., Desimone et al., 2002; Stes, Min-Leliveld et al., 2010), regarding more practicing of new skills and knowledge in the working place (e.g., Holton et al., 2000) and regarding more room for personal support (e.g., Batt, 2010). Because of technical difficulties with the web seminars we were not able to explore the effects of this type of e-learning.

Looking more closely at the four levels of Kirkpatrick, we see that the results for the first level (Reaction) were lower for the Plus Course than for the Basic Course, and that for the other levels the results were positive. This lower score on satisfaction can be explained by the fact that the Plus Course was scheduled over a five-month period instead of two consecutive days, and that the participants were expected to carry out assignments during their regular work. This makes the course less convenient for participants, but more effective for learning. In informal contacts participants in this Plus Course mentioned that they preferred one session that lasts a whole day over several short ones, as this was more easy to plan in their work schedule. Nonetheless, some participants indicated that they expected the format with several short sessions to be more effective than a single session lasting a whole day. This indicates a tension between 'what is best' (as deduced from the literature and the effects measured) and 'what is most desired' (as deduced from satisfaction scores and participation rates) in the construction of instructional development programs. This result

is in line with Young, Hollands and Solomon (2006), who in their study of 418 Australian surgeons also found a preference for traditional, passive formats such as reading articles and attending conferences, although literature indicated that interactive forms are more likely to improve teachers' practices.

For the other three levels positive results were found: on the Learning level, the Plus Course did not lead to differences in participants' responses concerning teacher's knowledge about systematic and constructive feedback, but results indicated that participants did change their attitudes and skills: participants reported having become more aware of their role as teachers, and reported a change in content and quality of feedback. For the Behavior and Results levels the participants reported having been more focused on their students and having created a more effective learning environment. They seemed to have been more aware of the students (as regards receiving their feedback, noticing their learning needs, and providing them with feedback). According to participants' answers, this change in the learning environment was accomplished by interacting more with students in order to know more about students' prior knowledge and skills, and by providing more extensive, more structured, and more positive feedback. These findings are in line with research by Pololi and Frankel (2005), who found that after an instructional development program medical staff had improved in self-awareness and changed habits of lifelong learning. The participants seemed to become more student-centered in their approaches to teaching. Similar findings were reported by Gibbs and Coffey (2004), who, by using the Approaches to Teaching Inventory (Trigwell, Prosser, & Waterhouse, 1999) were able to show that teachers, after participating in a 4-18 month training program, became less teacher- and more student-centered. Postareff et al. (2007) also found that the pedagogical training led to more student-centeredness.

4.4.1 Relevance and further research

Besides the field of medical education, which was the focus of this study, our findings may also be relevant for other disciplines in higher education. We hope to have shown that the 16 characteristics of effective instructional development can be used as a framework to study an existing program, and that this framework can be used to develop new courses. It is conceivable that in other courses the characteristics that were identified as 'not well implemented' would also need more attention. This would mean that those existing courses would need more emphasis on practicing new knowledge and skills in practice and personal support, and that scheduling and the format should be improved (by including alternative sessions and theory). In this chapter we explored to what extent it was possible to use our set of characteristics to adapt a course. Our study can be used as an

example of how to design a new course using the framework described. The prominent position of practicing by the use of assignments, the scheduling of the program as short sessions of three hours spread over five months, and the use of alternative practices such as discussion groups and feedback from students, are ideas that might be of use in other courses.

It was possible to measure the effectiveness of the course using the levels outlined by Kirkpatrick (1994). We developed an evaluation questionnaire that was linked to those levels. This would be a good addition to the existing evaluation forms in instructional development programs, which mainly measure satisfaction (Sparks, 1994) without attempting to measure higher levels of effectiveness (Prebble et al., 2004). Our evaluation questionnaire could be a good starting point for teacher educators if they want to evaluate more than satisfaction rates. In our study we had to rely on participants' self-reports; in future research it would be good to include results from the students as well.

Chapter 5

Medical teachers' learning visualized:
their learning processes in
an instructional development program

5. Medical teachers' learning visualized: their learning processes in an instructional development program[6]

Instructional development programs are important for teacher learning. Literature is available on characteristics that can improve the effectiveness of those programs. The study described in this chapter is an in-depth investigation of teachers' learning processes while they participate in a course that meets the criteria of effectiveness described in the literature. We used a model of teachers' professional growth to visualize the learning process of four medical teachers in detail, in order to understand what they had learned from the instructional development program and what specific components of the program contributed to their learning. For each teacher five learning diagrams could be drawn on the basis of interviews with these teachers. The diagrams showed that all participants reported having learned from the program, but the session about using 360° feedback from students resulted in complex learning patterns. The combination of theory and practice and the inclusion of student feedback (e.g., by means of an assignment) seemed to be important for teachers' learning.

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5.1 INTRODUCTION

Medical specialists who also teach students differ from teachers in primary and secondary schools, because teaching is often their second (or even third) priority. As specialists become ever busier in their own clinical practice it becomes more challenging to be an effective teacher, because of the reduced time for teaching (Prideaux et al., 2000). Medical teachers, just as other professionals, are expected to engage in lifelong learning and this requires that they keep abreast of new technologies and maintain and improve their competences (Educational Council of the Netherlands, 2006).

Teaching in the clinical environment can be defined as teaching focused on, and usually involving, patients and their problems (Spencer, 2003). Harden and Crosby (2000) identified six major types of medical teacher roles: (a) information provider, (b) role model, (c) facilitator, (d) assessor, (e) curriculum/ course planner, and (f) resource material creator. Many of these roles require a teacher to be more than a medical expert. In many educational settings teachers may have a only a limited number of roles at the same time, but clinical teachers often play many roles simultaneously, even switching from one role to the other during the same encounter in the work practice (Ramani, 2006). Given those complexities, clinical teachers need to possess a variety of teaching skills (Skeff et al., 1997).

In medical education in the clinical environment students are assumed to learn from experts in their work environment how to think and act as medical professionals. This type of learning is often referred to as the "cognitive apprenticeship model" of learning. Exposing students to this context is generally assumed to be preferable to a learning environment that is further removed from medical practice (e.g., the classroom) (Billet, 1996). A problem with the clinical learning environment in the context of medicine is that it is primarily intended for patient care rather than student learning. Also, because of time constraints only a few cases are discussed with an attending physician in this environment, and students can only see a narrow range of patient problems in a single clinic (Dolmans, Wolfhagen, Gerver, De Grave, & Scherpbier, 2004). When cases are discussed the interactions are mostly short, focus on management and treatment options, involve little teaching, and yield almost no feedback (Irby, 1995).

5.1.1 Learning from experience

Learning from experience also plays an important role in learning to teach. However, having experience is no guarantee that a person will actually learn (Mansvelder-Longayroux, 2006). The learners have to understand their

experiences if they are to be able to build up their (practical) knowledge (Korthagen, Kessels, Koster, Lagerwerf, & Wubbels, 2003).

Teacher learning is closely connected to teacher change, not only with respect to teachers' ideas and beliefs about teaching, but also with respect to actual behavior. There may be differences in the direction, depth, and results of learning (Bolhuis, 1995). Teacher learning most often takes place in teachers' daily teaching practice and in interaction with peers. This "situated learning" has been extensively described in the literature (e.g., Putnam & Borko, 2000). From this perspective teacher learning cannot be separated from the context in which it takes place. Meirink (2007) defines this type of teacher learning as an ongoing work-related process of undertaking activities that lead to a change in cognition (e.g., knowledge, beliefs, and attitudes), in behavior, or in both.

A way for learners to reach an understanding of their experiences which might influence their practices is by reflection. This involves a reconstruction of experiences (Korthagen et al., 2003) leading to a new comprehension of a situation, of self-as-a-teacher, or of teachers' own assumptions (Grimmith, 1988). In general, reflection is seen as a way of systematically thinking about experiences, frequently coupled with action in educational practice, and arising from a problem from actual practice (Hatton & Smith, 1995). Reflection depends on the context and can take various forms (Ovens & Tinning, 2009). McAlpine and Weston (2000) show that medical teachers who are considered excellent teachers know a lot about their students, both as groups and as individuals, and use this knowledge when reflecting on the impact of their teaching.

5.1.2 Using feedback for teacher's learning

Feedback is one of the most powerful factors affecting learning and achievement, but this impact can be either positive or negative, depending on type of feedback and the way it is given (Hattie & Timperley, 2007). Feedback can inform teachers about the impact of their teaching and can stimulate teachers' reflections on their teaching. The focus of the feedback is critically important. Hattie and Timperley (2007) identify four major levels. First, feedback can be about a task or product, such as whether work is correct or incorrect. This level may include directions on how to acquire more correct information (e.g., "you need to include more information on"). The second level is feedback about how to accomplish a task. This kind of feedback focuses on processing information, or on learning processes that are necessary for understanding or completing a task (e.g., "this can be improved if you use the strategies discussed earlier"). The third level is feedback about self-regulation, including skills in self-evaluation or confidence to engage in the task. Such feedback can have major influences on self-efficacy, self-regulatory proficiencies, and self-beliefs about students as

learners (e.g., "you already know the students well, try to use this knowledge to motivate them for this topic"). The fourth level is about the self as a person. It is often unrelated to task performance (e.g., "you are doing well as a teacher"), and therefore not as effective as the other three levels.Feedback from students is a powerful tool for teachers to learn from, as their students are the target group of their teaching. Student feedback can be used to enhance the quality of teaching but should never be used in isolation (e.g., Harvey, 2001; Williams & Brennan, 2003). In medical education there are specific instruments by which to obtain feedback from students (Copeland & Hewson, 2000; Dolmans et al., 2004; Litzelman, Westmoreland, Skeff, & Stratos, 1999; Lockyer & Clyman, 2008). Dolmans et al. (2004) state that most feedback instruments are not theory-based. They developed a new instrument consisting of 18 items on a five-point Likert scale, based on the five forms of learning environments as identified by Choi and Hannafin (1995): modeling, scaffolding, coaching, collaborating, and fading.

Another strategy to get feedback is 360° feedback, which has now been introduced in the medical post-graduate education in the Netherlands. This consists of feedback from different sources, such as students, colleagues, and secretarial staff, so that an overall assessment may be obtained of the competences of a medical specialist. An advantage of this type of feedback is that many sources are used, thus reducing the "one person/one perspective" bias (Lockyer & Clyman, 2008).

5.1.3 Instructional development programs

In order to help medical specialists develop their competences as teachers instructional development programs are available. Given the importance of feedback for learning it is advisable that in these programs considerable attention is paid to enhancing feedback skills.

Most clinical teachers have had a great deal of training in medical knowledge and skills, but little to none in teaching (Ramani & Leinster, 2008). In other words: they are experts in *what* they teach, but most have had little or no training in *how* they teach (MacDougall & Drummond, 2005). If medical teachers attend an instructional development program they may discover that education is also a field of research, just as the study of medicine. McLeod et al. (2008) found that participants in an instructional development course on basic pedagogical principles were surprised to discover the existence of an extensive body of pedagogical science underlying teaching and learning. In an earlier study McLeod et al. (2004) found that clinical teachers already possess a reasonable amount of tacit knowledge of basic pedagogical principles. Morrison, Shapiro, and Harthill (2005) report that medical teachers who participated in teaching as well as in a 13-hour teacher-training program expressed a greater

enthusiasm for teaching, used more learner-centered approaches, and had a richer understanding of teaching principles and skills than teachers who did not attend the program. More of these teachers wanted to continue teaching after the training program than teachers from the control group, who were more easily frustrated by time constraints, and often expressed cynicism and blamed learners.

Clarke and Hollingsworth (2002) state that to facilitate the teachers' instructional development it would be necessary to understand the details of the learning processes and the conditions that support teachers' learning.

In the study described here we used a model to better understand the underlying learning processes stimulated by a specific instructional development program. The program met the 16 criteria of effectiveness derived from a literature study, which were also accepted by both medical teachers and teacher educators as appealing and relevant in medical education. The procedure for selecting those criteria and for devising the program based on the criteria has been extensively described in Chapters 2, 3, and 4. Understanding how the various components in an instructional development program influence teachers' learning might yield indications on how to improve instructional development programs in the future.

The following research questions will be answered*:*

How can teachers' learning in the adapted instructional development program be visualized?

What kind of learning sequences can be recognized in the various components of the program?

5.1.4 Visualizing teachers' learning by means of a model

In order to promote instructional development we must understand how teachers learn. The focus of most research in the psychology of learning and education has been on student learning (ICLON, 2009); only recently have the learning processes of teachers been given greater attention (Borko, 2004; Hammerness, 2005).

Teachers' learning can be visualized by the use of a model. For a long time it was mostly linear models that were used to visualize teacher learning and its consequences: teacher education or teacher development programs were supposed to change teachers' knowledge, beliefs, and attitudes. This would subsequently lead to a change in their everyday practice, and this, ultimately, would influence student outcomes (e.g., Richardson & Placier, 1986). Later ideas about teacher change focused more on learning by reflecting on teachers'

everyday practices (Guskey, 1986; Korthagen et al., 2003). Guskey (1986) developed a model based on the assumption that instructional development programs caused a change in teachers' practice, which in turn led to change in student learning and ultimately to a change in teachers' knowledge, beliefs, and attitudes. These linear models were criticized by for instance Borko (2004), for not being suitable to show the complexity of processes in teachers' learning.

Clarke and Hollingsworth (2002) developed a non-linear model of teachers' professional growth (Figure 5-1), which was inspired by earlier linear models (e.g., Fullan, 2001; Guskey, 1986). The model can be used to study and describe teachers' learning. We have chosen to use this model in our research because it fits our aim to visualize teachers' learning and learning processes and because, given its non-linear character, it can show teacher-learning processes starting from different domains. It can display complex learning patterns, it includes actions as well as reflections, and it can also show which factors are important in learning. With the help of this model it is possible to obtain insight into the underlying factors that are crucial for the learning process. In our study we used the Clarke and Hollingsworth (2002) model as a tool to analyze the learning processes reported. 'Learning" is defined here as a change in teachers' cognition and/or behavior (Zwart et al., 2007).

Clarke and Hollingsworth (2002) used empirical data from three longitudinal studies to distinguish four different domains that are important in the teachers' learning: (a) Personal domain (teachers' knowledge, beliefs, and attitudes that influence their learning), (b) External domain (external resources of information or stimuli available to the teacher, e.g., instructional development programs), (c) Domain of practice (professional experimentation, e.g., teaching students), and (d) Domain of consequence (salient outcomes related to classroom practice, e.g., student results). They also introduced "the change environment", meaning all context factors that indirectly influence the learning process, for example the management, resources, and the curriculum in the institution.

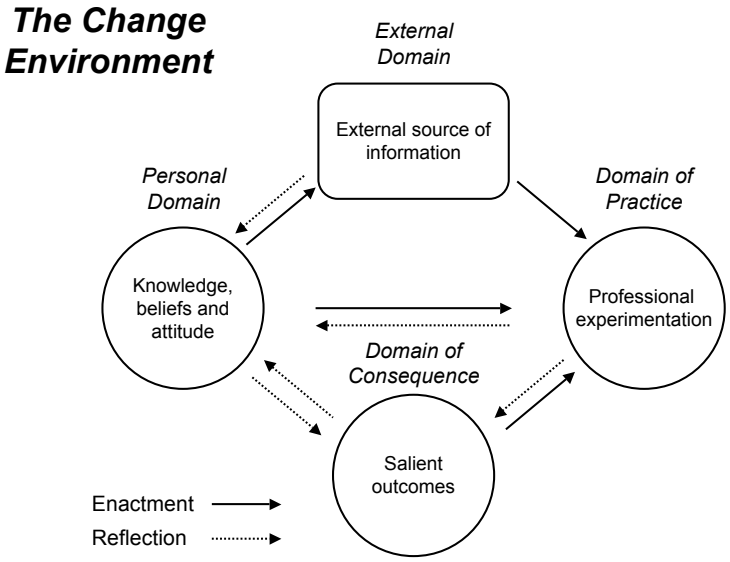

Figure 5-1. The interconnected model of teachers' professional growth (Clarke & Hollingsworth, 2002)

In the Clarke and Hollingsworth model (Figure 5-1) a change in one domain leads to changes in other domains through the mediational processes of "enactments" or "reflections". The term *enactment* (solid arrow) refers to something that a teacher does as a consequence of what 'the teacher knows, believes, or has experienced' (Clarke & Hollingsworth, 2002, p. 951). For example, a teacher has learned (in the External domain) about a new method to provide feedback to the student and uses this new method in everyday practice (in the Domain of practice). The term *reflection* (dotted arrow) refers to a set of mental activities intended to construct or reconstruct experiences, problems, knowledge, or insights (Zwart et al., 2007). For example, the teacher receives feedback from the students about their difficulties to plan an appointment with the teacher and thinks about explanations why he/she is difficult to access. Justi and Van Driel (2006) developed a coding system for the various enactment and reflection arrows (relationships) between the domains. Clarke and Hollingsworth (2002) state that through these processes of enactment and reflection change can occur, for example, if teachers consider the fact that they are bus, they might change the planning of the working day, leaving more time to see students. These changes can result in either a single change sequence (a change involving two domains, indicated by one arrow), resulting in a limited change, or more

complex and an ongoing changes within a growth network (changes between various domains, indicated by two or more arrows).

We slightly adapted the model for use in our study by fine-tuning the External domain (see Figure 5-2). In line with Zwart et al. (2007) this domain was divided into two parts: the instructional development program the teachers participated in, and a general part (e.g., sources of information or support for the teacher, such as colleagues or articles). The subdomain 'instructional development program' was divided into content and process, on the basis of Guskey's classification (2000). In this classification content characteristics refer to the "what" of instructional development programs (e.g., new knowledge, skills, or understandings); process variables refer to the "how" of instructional development programs (e.g., types and forms of activities, such as workshops and presentations, and the way those activities are planned, organized, carried out, and followed up). Dividing the instructional development program into these two parts provided us with better opportunities to gain insight into the ways in which teachers use those parts in their learning.

In this study, the teaching practice (Domain of practice) means that the teacher observes a student during patient contact and provides feedback to the students about these contacts.

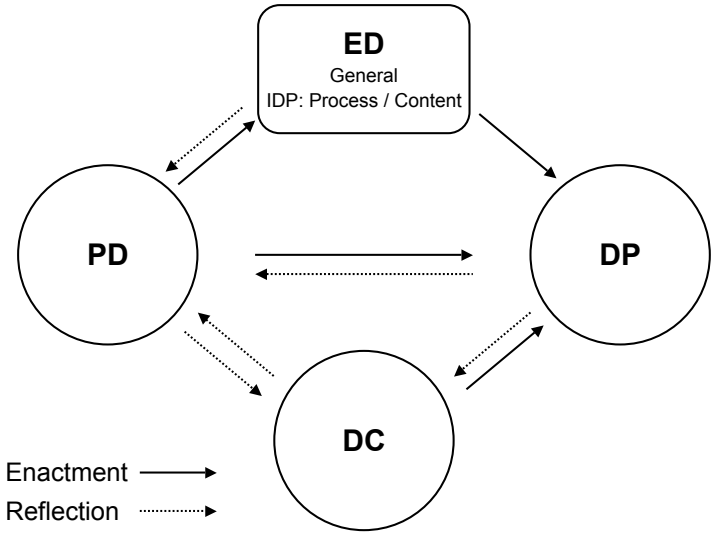

Figure 5-2. Adapted model of teacher's professional growth

In earlier studies (Clarke & Hollingsworth, 2002; Justi & Van Driel, 2006; Wongsopawiro et al., 2009; Zwart et al., 2007) the model of Clarke and

Hollingsworth (2002) was used to study teachers' learning in primary and secondary education. In those studies it was especially the External domain and the Domain of consequence that were found to be important with respect to teacher learning. Those domains were particularly important for the stimulation of enactment and reflection on the part of teachers. Zwart et al. (2007) studied teacher learning in the context of reciprocal peer coaching, and found a distinction between learning processes that included the External domain and processes that did not. If both the Domain of consequence and the External domain were included patterns of learning were more complex, and therefore more promising with respect to teacher growth. Wongsopawiro et al. (2009) studied in-service teacher learning in the context of action research, and they also found that both the External domain and the Domain of consequence were important domains with respect to more "promising" change patterns when seen from the perspective of teachers' learning.

5.2 METHOD

In order to visualize teacher's learning, four teachers reported in an in-depth interview about what they had learned in the various sessions of the instructional development program. This information was used to construct learning diagrams based on the model of Clarke and Hollingsworth (2002), which are meant to depict underlying factors that initiated the teacher's learning. Differences in the patterns could indicate differences in teacher learning during the different components of the program (sessions). In this section we will first present information about the various sessions of the instructional development program, and then go on to describe the participants we interviewed. Third, we will provide information on the data collection, and finally we will describe the data analysis.

5.2.1 Design of the instructional development program

Our study was conducted in the context of an instructional development program for medical specialists. This program was carried out from September 2008 to May 2009. The aim of the course was to create awareness in the participants about their roles as teachers and to develop their knowledge and skills, especially those related to providing feedback to their students. The course consisted of various sessions (Table 5-1): A two-day Basic Course (held five times in the period September-December) and three follow-up sessions (January to May). If participants were not able to attend one of the follow-up sessions they had to complete an alternative assignment in order to obtain accreditation points. Table 5-1 describes the instructional development program. The various sessions were designed using the 16 characteristics of effective instructional development programs as described in Chapter 4. All sessions offered room for discussion,

and because of the scheduling over a longer period sufficient time was provided for the participants to try to integrate the new knowledge and skills into their everyday practice. The sessions differed specifically in the amount of theory, methods, the nature of the assignments (and the practicing of feedback), and the involvement of students in the sessions. The "Basic Course" session was set up as an introduction program intended to enhance general pedagogical skills and knowledge, the other sessions were especially aimed at specific skills and knowledge (teachers' feedback skills, knowledge about feedback).

Table 5-1. Overview of the Instructional Development Program

Sessions
Basic Course Session (Two days)
This Basic Course session consisted of an interactive and varied program intended to enhance *general* pedagogical knowledge and skills. Many different topics were treated, combining theory (pedagogical knowledge) with some practical assignments (practicing). Those assignments mainly involved a practice session of one group member, while the others were observing. No students were involved in this course.
Video vignettes session, using a feedback form
This session was specifically aimed at enhancing the participants' feedback skills. In the session the teacher educator explained the theory about feedback and about the use of the feedback form. Video vignettes from students during patient contacts were used to practice filling in the specific feedback forms. Afterwards the feedback forms were discussed among the participants.
360° feedback session
This session was set up to introduce the concept op 360° feedback and to practice with written personal feedback from students. The teacher educator explained the use of this method. In this session the participants also discussed the way they used the feedback from the students about their functioning in the workplace. In the last part of the session a feedback form filled in by a student was discussed.
Peer group discussion
The aim of this session was to exchange ideas about specific cases via a peer group discussion. In two small groups the participants discussed cases from their work context, including a "challenging" situation involving a student.

5.2.2 Participants

To get a complete picture of all the sessions in the course, only those teachers were selected for the interviews that had completed all assignments of the sessions and had handed in feedback from at least two students. This resulted in four teachers being selected from all the participants for an in-depth interview (Table 5-2). They were either working in an academic hospital in the Netherlands, or at an affiliated general hospital near an academic hospital. They were experienced medical doctors, who were also involved in the training of students. All were male and aged above 45. They had much practical experience in training students, but did not have much theoretical background on how to train students. There were differences in the frequency with which they provided feedback to their students, and in the number of students per year that they trained.

Table 5-2. Characteristics of the Participating Teachers

Name	Specialist	Hospital	Number of students/year
Simon	Radiotherapy	Academic	8
Nigel	Internal medicine	General	12
Edward	Internal medicine	Academic	3
James	Surgery	General	8

5.2.3 Data collection

In order to gain an understanding of the teachers' learning process we carried out semi-structured interviews about teachers' reported learning. Those in-depth interviews were conducted one month after completion of the course. This interval was chosen in order to enable teachers to make changes in their everyday practice. In the interviews the teachers were asked to describe in general terms what they had learned from the course, and if they had used the new knowledge and skills in their daily work. In addition, the teachers were specifically asked to report what they had learned from the various sessions (see Appendix F). The interviews lasted 45-60 minutes and were held in the hospital where the participant was working. During the interviews the short reports that the participants had written after each session were used as input. For these reports the participants had been asked what they intended to change in their everyday practice, and also if they had reached the learning goals formulated in the preceding sessions, and if not, why.

5.2.4 Data analysis

All interviews were transcribed verbatim, and interview fragments that referred to a specific session of the instructional development program were grouped together and summarized. The interview fragments were examined and statements were selected that showed indications of change/learning. Indicators for change (derived from Zwart et al., 2007) were, for example, reported changes in cognition, including statements such as "I have learned that", "I know how to", "I understood why", changes in attitude or beliefs, including statements such as "I feel that now I can", "I believe now that", "I am confident in", and changes in perceived behavior including statements such as "I used to do…, but now I am doing…"," I tend to do more…," "I am doing things differently now, etc.".

We used the codes from Wongsopawiro et al. (2009), who adapted the codes for the various relations between the domains developed by Justi and Van Driel (2006), to visualize the teachers' learning in an instructional development program. We also identified in which domains the starting (entry) and end points occurred, and how this impacted the other domains.

Table 5-3 shows an example of part of a summary of interview fragments for one of the participants in the session on video vignettes. Figure 5-3 depicts the diagram that was derived from these fragments. In this example a teacher reported having learned to use feedback in a different way (Arrow 1, to Personal domain) due to the session on video vignettes (External domain) that he attended. This session was the starting point (entry point) of his learning. In his practice he introduced a new format of the feedback form to his students. After using this new format in everyday practice (Arrow 2, to Domain of practice) he noticed that his students (Arrow 3, to Domain of consequence) had not yet got used to this new way of working. On the basis of these interview fragments two "reflection arrows" and one enactment arrow could be drawn, using the codes from Table 5.3.

On the basis of the data, diagrams were drawn for each teacher of the reported learning processes they reported in the various sessions of the instructional development program (External domain). Five diagrams could be drawn for every teacher, about (a) the two-day basic course, (b) the session on the use of a specific feedback form, (c and d) the session on 360° feedback (theory and practice), and (e) the peer group session. For the session on 360° feedback two different diagrams were drawn for every teacher: one for the theoretical background of 360° feedback, and one for the assignment in which participants received feedback from their students. This resulted in a total of 20 diagrams. On the basis of the interview data two additional diagrams were identified, as two teachers reported two different learning outcomes in one session. Thus, ultimately 22 diagrams were constructed. We were specifically interested in the

Table 5-3. Summary of Interview Fragment

Interview fragments	Arrow (relationship)	Code (from Justi & Van Driel, 2006)
The teacher reports having learned from the instruction about how to fill in a feedback form in the session on video vignettes. He learned that before the observation he should choose which competences of the students he would focus on. This meant that he did not have to fill in the complete form, just the parts he selected. He thinks that this makes it easier for him, as he only has to focus on one or two different parts of the form.	1. ED to PD	When something that happened during the learning activities modified the teacher's initial cognitions or beliefs.
As a consequence of his considerations and ideas, he uses this new way of filling in the form in his workplace, and says that it simplifies his practice because he can be more focused during the observation. It also takes him less time to complete the form.	2. PD to DP	When a specific aspect of the teacher's cognitions or beliefs influenced something that occurred in the teacher's practice.
He says that his students have not yet got used to this new way of working (i.e., not using the whole form any longer) .	3. DP to DC	When a teacher noticed and reflected on something that he or his students did in the teaching practice that caused specific outcomes.

number of "enactments" and "reflections", and in the formats of the various diagrams. The diagrams that included the Domain of consequence were the most interesting for us, because these showed how the teachers reflected on the students.

To strengthen the reliability of the analysis the coding of the changes and the construction of the diagrams were done independently by two coders (Cohen, Manion, & Morrison, 2000). Comparison of the results obtained by the coders showed that in only a few cases (2 out of 22) there was a difference in the coding and the construction of the diagrams. In those cases, the differences were discussed until agreement was reached.

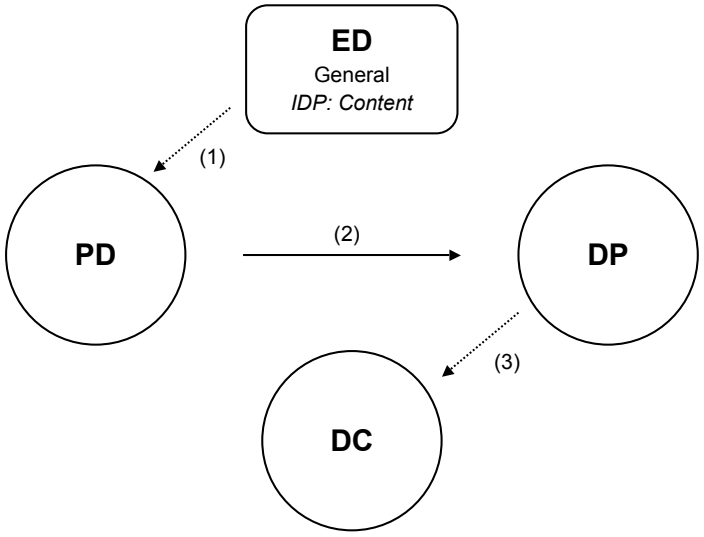

Figure 5-3. Example of a diagram based on the data for one of the teachers

5.3 RESULTS

Analysis of the different interviews resulted in 22 diagrams of the various sessions of the instructional development course. In this section we describe the patterns of those diagrams, and show the various diagrams that display the learning processes of the teachers in the four different sessions, as reported at the time of the interview. For each session we will use the diagram of one teacher to illustrate the visualization, and use quotes from the interviews to explain the typical enactments and reflections occurring in each of the pathways.

5.3.1 Basic Course session

The Basic Course session was set up as an introductory course on pedagogical knowledge and skills, scheduled over two consecutive days. Many different theoretical aspects were covered, and some assignments were included to practice presentation and feedback skills.

For this session three teachers reported what they had learned from the content of the course, and one participant reported what he had learned from both the content and the process of the course. We will first show the learning patterns of the first three teachers, and then that of the other participant.

The three teachers reported having acquired new knowledge (for example about the principles of adult learning and new methods of providing feedback) and having become more aware of being a role model for their students. On the basis of the interviews two types of diagrams could be drawn: one in which there

was a relation (reflection arrow and enactment arrow) between the External and the Personal domains (Figure 5-4), and one in which the Domain of practice was also included (Figure 5-5). We will discuss these diagrams in detail, using one of the teachers as an example.

James (Figure 5-4) reported that he had learned from the Basic Course (entry point: External domain) that there was a theoretical background on what is effective in medical education (e.g., adult learning), which changed his ideas about the phenomenon (Arrow 1). This change in his own thinking made him explain the theory to his colleagues (Arrow 2, to general ED). After he had informed his colleagues about his changed ideas, he reflected:

> We all have to realize that we have to change something in the normal daily practice, in the normal way of working. This takes time and needs motivation; it does not come of its own accord.
> (Arrow 3)

Edward (Figure 5-5) reported that from the presentations in the Basic Course (entry point: External domain) he had gained new knowledge about the process of learning and the reforms in medical education. As a consequence, he had also become more aware of his status (Arrow 1). On the basis of what he had learned, he subsequently implemented a structured way of supervising students (Arrow 2). He reported that in the past he had structured the supervision for "difficult students", but that he had now extended this to all his students. He reflected on this new way of teaching:

> I think it is good: explicating is good, so that beforehand you are aware of what you are going to do. (Arrow 3)

A more complex diagram was drawn for Simon (Figure 5-6). Unlike the other teachers, he reported having learned not only from the content of the course, but also from the various activities (process) in this course. Simon (Figure 5-6) says that from the presentations, assignments, and exchange of experiences in the basic course (entry point: External domain) he had learned that he should become more aware of how to provide feedback to students (Arrow 1). He also learned to fill in the feedback form in a more structured way, and focus more on specific parts of the form during observations. He reported having tested the new way of using the feedback form (Arrow 2), and noticed differences:

> (…) In the sense that you [Simon] more often have the idea that it makes sense, this is structured so that you also document this well, this form. (Arrow 3)

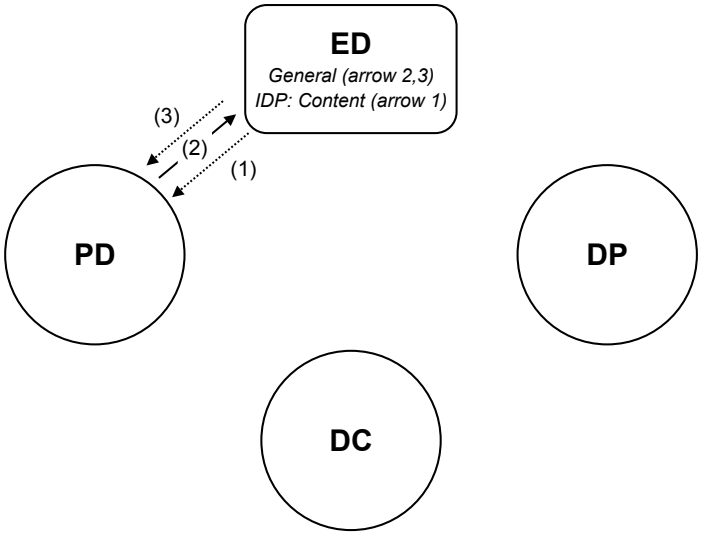

Figure 5-4. Basic Course: Reported learning in two domains (James)

At the same time he had been practicing a new type of situation with a student, and after feedback from Simon the student practiced it again several times (Arrow 3).[7] He said that they both found this a very useful exercise. He reported being more aware now of potential learning situations. (Arrow 4).

So, the Basic Course resulted in various different patterns: one in which the teacher explained his knowledge and skills to his colleagues, one in which the knowledge was also used to change a teacher's behavior in everyday practice, and one that was more complex, including the Domain of consequence. This complex pattern was based on both content (theory) and process (practice) of the Basic Course. The ending point of all diagrams was in the Personal domain.

5.3.2 Video vignettes session

In this session theory about feedback was provided, and three video vignettes were shown on which to practice the use of a specific feedback form. These vignettes showed (real) students during their interaction with a patient. After every observation a discussion took place about the various scores and opinions of the participants.

7 In line with Wongsopawiro et al. (2009) we included the option to draw two arrows that refer to the same moment

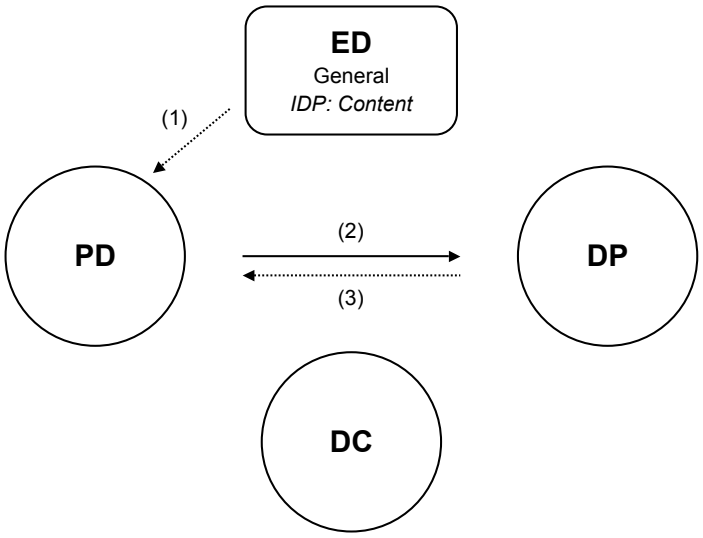

Figure 5-5. Basic Course: Reported learning in three domains (Edward)

The diagrams for these sessions displayed a mixed pattern: for two participants simple diagrams could be drawn in which two or three domains were included (Figure 5-7), and two participants required more complex diagrams, which also included the Domain of consequence (Figure 5-8).

Figure 5-7 (Simon) shows a simple diagram, in which the teacher has changed his daily practice. Simon reported having learned from practicing with the video vignettes (entry point: External domain) about ways to improve his feedback, by giving more positive feedback and adding more comments on the feedback form (Arrow 1). He reported that he now told patients more explicitly that he was present as an observer to provide feedback to the student, and that the student would be the one attending to the patient (Arrow 2).

Figure 5-8 (Edward) shows a complex pattern in which all domains are included. Edward mentioned that he had learned new things in the session in which video vignettes were used to practice feedback skills (entry point: External domain), especially the fact that participants could score the feedback form in different ways. He also reported having learned how to fine-tune his feedback (Arrow 1). His concern about the feedback form was that students could view filling in the feedback forms as an obligation (Arrow 2). He said:

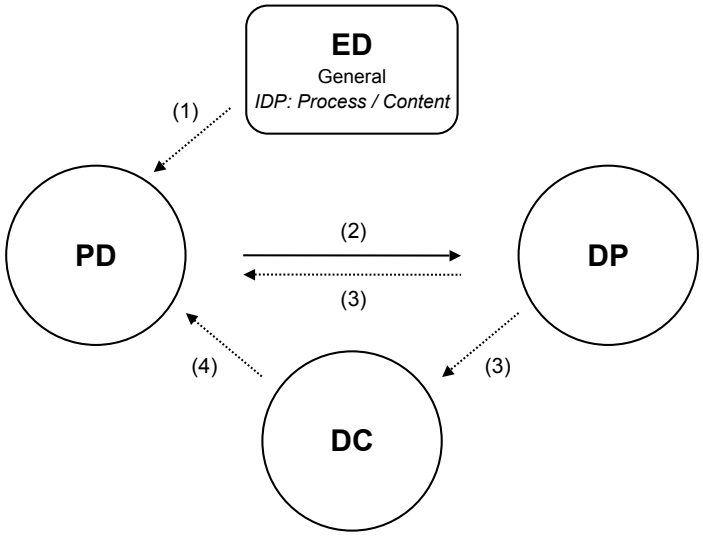

Figure 5-6. Basic Course: Reported learning in all domains (Simon)

> It [i.e., the feedback form] is a means, well, it should not be more than a means.

He saw it as his task to make sure that the feedback forms were used in such a way that studentes were not just filling in numerous forms, but also receiving valuable feedback (Arrow 3). He thought that the feedback forms were important for improving his teaching. He also thought that the idea of filling out of the feedback form during observation was not efficient. He said:

> What I really found absurd, really absurd that you have to be present in a consultation session of a student. I think you can arrange [to observe a student] more cleverly than by using an expensive staff member. The most expensive staff member should not be placed on a chair, doing, well let's not say nothing, but less efficient work.

He proposed the idea of transparent walls so that consulting rooms could be seen, in order to observe students indirectly (Arrow 4).

The session in which video vignettes were used to practice feedback showed a mixed pattern: two teachers received simple diagrams, and two teachers more complex ones, in which the Domain of consequence was included. The ending points of the various diagrams also differed (Domain of consequence, Domain of practice, and Personal domain).

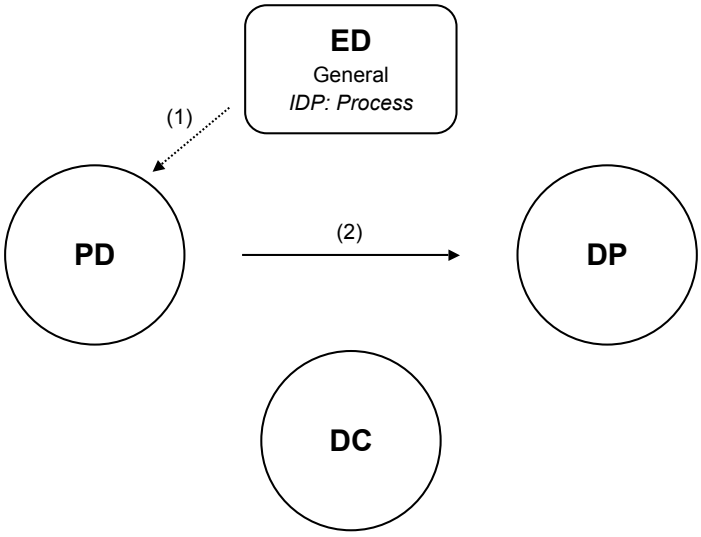

Figure 5-7. Video vignettes: A simple diagram (Simon)

5.3.3 Session on 360° feedback

In the session about 360° feedback the concept of feedback from various sources was introduced. Also, as a preparation to this session, participants asked their students to provide them with feedback about their functioning in the workplace. The participants reported about the content of the session as well as the feedback from students (process). The resulting diagrams for the content of the session were less complex than those for the process.

The feedback the teachers received from their students led to complex diagrams for all participants, and those patterns also included the Domain of consequence. All diagrams had two or more reflection arrows, and in three out of the four diagrams multiple relations (e.g., arrows 2 and 5 in Figure 5-9) between the various domains were established. James's diagram did not include relations between the domains, as he only reflected on the feedback:

> Yes, I learned from the feedback. Although, of course you always think for yourself: You are right, but but yeah, nobody is perfect, and nobody is the same (…) But I think that you use this feedback subconsciously.

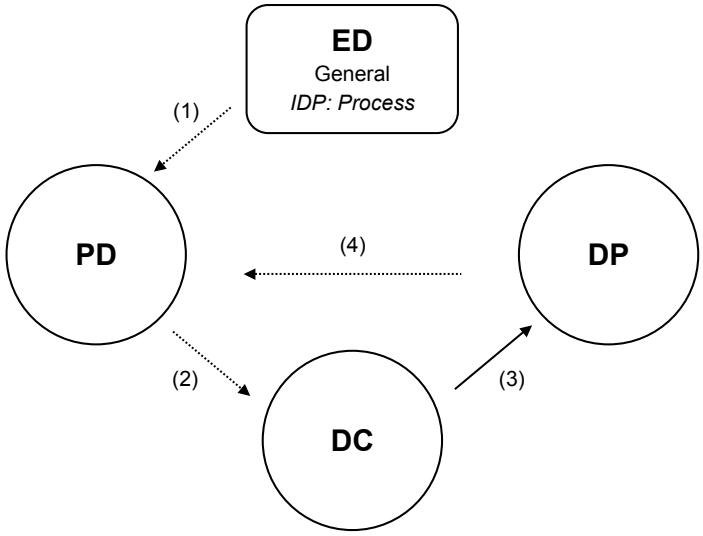

Figure 5-8. Video vignettes: a complex diagram (Edward)

Figure 5-9 shows the diagram for Nigel. Nigel carried out an assignment (entry point: External domain) in which he asked his students (Arrow 1) to provide him with written feedback (Arrow 2). From this feedback he learned that he did not take enough time for his students (Arrow 3). He said:

> But of course it has to do with the fact that as a trainer you are busy with a hundred thousand things (…) But apparently they feel this is necessary, so then you can say, OK, I'll try to take more time the next time, I am aware of that. (Arrow 4)

He reported that he understood the feedback, and he thought that some students liked his way of doing things, but that others would like to have more dialogue. He said:

> So, the moment that you, with all your good intentions, hear the feedback, you think again, "O, yes that was true", and then you can try to take it into account. (Arrow 5)

He reported that if in his everyday practice he is too busy and not available for his students, he now realizes this and takes action (Arrow 6).

Overall, the assignment involving feedback from students resulted in complex learning patterns for all teachers. In these patterns the Domain of consequence was also included. Teachers reported that they had become more

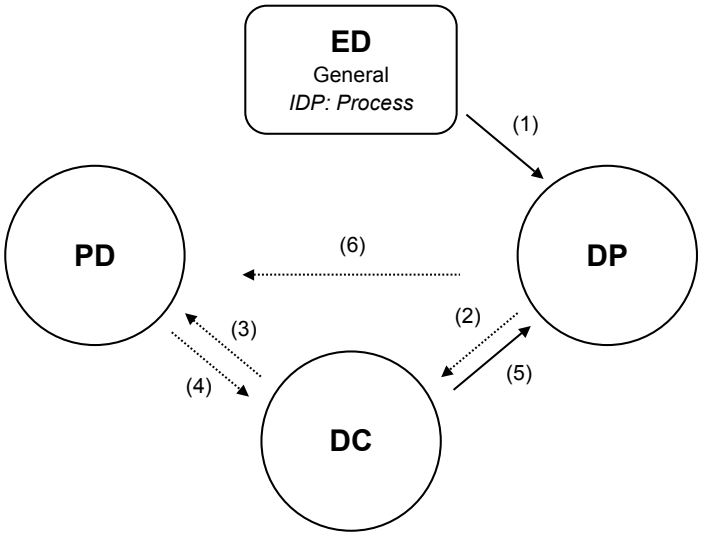

Figure 5-9. 360° feedback: A complex diagram (Nigel)

aware of what students might think of them. This was also shown by the fact that teachers displayed more reflections than enactments.

5.3.4 Peer group discussion

In the last session teachers participated in a peer group discussion. They discussed "challenging situations" involving a student. In the teachers' interview fragments no reports of having learned anything could be found. They only reported their opinion about the session. Edward said, for example:

> Yes, I think that in medicine it is good to pay more attention to this [peer group session], but it is not something very innovative.

Thus, for this session no learning was reported and no diagrams could be constructed.

5.4 CONCLUSIONS AND DISCUSSION

Our study focused on the following research questions:

> *How can teachers' learning in the adapted instructional development program be visualized? What kind of learning sequences can be recognized in the various components of the program?*

In this chapter we described how teacher learning in the various sessions of the programs can be visualized by using an adapted Clarke and Hollingsworth

model. This model can be useful in visualizing and describing teachers' learning in instructional development programs. Advantages of this model over other models for teacher learning are that reflections and enactments can represent different types of relations between the various domains, and that the entry points can be situated in all different domains. This would not have been possible with the linear models such as used by Fullan (2001) and Guskey (2002).

The participants reported various learning outcomes: they told us they had acquired new pedagogical knowledge, improved their feedback skills, and became more aware of their role as a teacher (e.g., a role model for students). The increased awareness might be a result of the program, in which teachers were helped to shift the focus in their Domain of consequence from patients to students by discussing the students in various ways: their performance in the video vignettes, feedback from students, and experiences with students (in the peer group discussion). In this way the participants may have started to realize that the students were also an important target in improving the quality of patient care. For the various sessions the teachers reported more reflections than enactments, as reflected in their diagrams. This might be related to the fact that teachers' awareness had increased, but that they still need to be stimulated to translate their learning into actual actions and changes in everyday practice. This awareness could indicate that the participating teachers had become more student-centered, which would be in line with for example the studies by Postareff et al. (2007) and Gibbs and Coffey (2004), who found increased student-centeredness in participants after they attended an instructional development program.

The various sessions showed different patterns in teacher learning. When comparing the diagrams of the various sessions, we found that the session about 360° feedback, which used the feedback from students, contributed most to teachers' learning: all teachers displayed complex patterns within this learning context. Other complex diagrams (many reflections, enactments, and the inclusion of the Domain of consequence) were found in the session on video vignettes (for two teachers) and in the Basic Course session (for one teacher). Comparing the diagrams from the various sessions we see the most complex patterns when the participant reported having learned from both content and process (Basic Course), when students were actually included in the sessions, either by video vignettes or by 360° feedback, and when there was a combination of theory and practice in which teachers could practice including students in their teaching (e.g., filling in a feedback form, collecting feedback from students). The students were included in the sessions in various ways: by discussing them, by using video vignettes in which students were showing their skills, and by using their feedback. It was especially the personal feedback from the students that seemed to be powerful, as it gave the participants much insight into their functioning.

From our study we can conclude that all teachers have learned from the course. The External domain can therefore be seen as a stimulator to enhance teachers' learning, especially when the Domain of consequence is included. This is in line with Wongsopawiro et al. (2009), who also found the External domain to be important in facilitating teachers' learning. We expect that these results will be applicable to other higher education settings as well, because in those settings, as in the situations in which we gathered our data, many teachers have not received any kind of formal training (Visser-Wijnveen, 2009) but do have experience in teaching.

5.4.1 Relevance and suggestions for further research

Exploring teacher change by using the adapted model of Clarke and Hollingsworth (2002) to visualize the learning process of teachers participating in instructional development programs in higher education has seemed to be successful. This model might also be of use for other programs in higher education, to find out which specific sessions facilitate teachers' learning. Instructional development programs that specifically focus on linking theory to practice and that actually include students (e.g., by means of an assignment about 360° feedback) will definitely facilitate teachers' learning.

By providing answers to the research questions we wanted to contribute to the understanding of the learning processes initiated by instructional development programs in higher education, and to understand the different learning processes in the various sessions. We identified the entry points of the various learning processes in order to obtain additional information about the factors that lead to those learning processes. This information is important for the further improvement of instructional development programs. For example, in this study we found that the assignment to ask students for feedback led to complex learning patterns. Teacher educators then would know that this specific part of the program should also be included in future programs. This information would not be available if only the regular evaluation forms were used, because they often only measure satisfaction with the course (Sparks, 1994).

Clarke & Hollingsworth's model of teachers' professional growth (2002) could be used to show the learning processes in the various sessions on the basis of the in-depth interviews. We interviewed the four teachers on only one occasion, but it would be interesting in further research to study teachers in more detail during one or two years. Besides, it would be interesting to compare the diagrams made for this program with diagrams for similar programs taught in other institutions.

Chapter 6

Conclusions and Discussion

6. Conclusions and Discussion

6.1 OVERVIEW OF THE STUDY

Instructional development programs can be important tools to facilitate medical faculty in their role as teachers. Although there is a large body of literature on the effectiveness of such programs, various reviews reach different conclusions about their impact (e.g., Levison-Rose & Menges, 1981; Prebble et al., 2004; Steinert et al., 2006). These differences in reported effectiveness might be related to differences in the design characteristics of the programs. Literature on the characteristics of effective instructional development programs (knowledge-for-practice) forms an important source of information for the design of such programs. The characteristics described in the literature may help both teacher educators and program developers, but are often formulated without taking context and specific conditions into account. This makes it difficult to see the relevance of the results, and hinders the implementation of those characteristics in actual teaching practice. The knowledge of teacher educators (practical knowledge) and the preferences of teachers can be useful to bridge this gap between literature and implementation, and to identify characteristics that are not only effective for teachers' learning but are also relevant and appealing to teachers and teacher educators. This leads to the central research question of this thesis:

> *What characteristics of effective instructional development are appealing to medical teachers and relevant for the design of instructional development programs for medical teachers, and what do these teachers learn from a specific program that takes into account those characteristics?*

In order to answer this question we conducted two studies. In the first study, described in Chapters 2 and 3, selecting those aspects that characterized effective instructional development programs was the center of attention; in the second study, reported in Chapters 4 and 5, we focused on teachers' learning in an adapted instructional development program, in which the characteristics of effective instructional development programs selected earlier were used as a framework.

In the first study teachers and teacher educators were asked to indicate which of the 35 effectiveness characteristics derived from the literature on effective instructional development (Guskey, 2003; Steinert et al., 2006) they considered important in instructional development programs. For the study described in Chapter 2 we sent out questionnaires to medical teachers in the Leiden University Medical Center, asking which characteristics would appeal most to them if they were considering participation in instructional development programs. In Chapter 3 we reported a study in which teacher educators from all eight medical schools in the Netherlands were interviewed about the characteristics they considered most relevant for teachers' learning.

In the second study we used the characteristics collected in the first study as a framework to analyse a successful instructional development course (Train the Trainers) in order to understand its effectiveness. Secondly, we developed an additional instructional development course, based on the framework and the information derived from that successful course. We studied teachers' learning in this program in two ways: first (Chapter 4), we used an evaluative questionnaire to report the effects of the program, using Kirkpatrick's four levels (1994). Second (Chapter 5), we constructed an in-depth visualization of the learning processes of four teachers in the various sessions of the adapted instructional development program, using Clarke and Hollingsworth's model. The learning diagrams we constructed on the basis of the interviews informed us about teachers' learning in the various components of the program.

In this concluding chapter we will first describe our conclusions with respect to the research questions, and discuss the outcomes of both studies. Next, we will discuss the strengths and weaknesses of these studies. Finally, we will provide some suggestions for future research and indicate implications of our findings for teachers, teacher educators, program developers, and policy makers.

6.2 CONCLUSIONS

In this section we describe the conclusions for each of the research questions, first for the study into the characteristics of effective instructional development, and second for the analysis of a successful course, the design of an adapted program, and teachers' learning in this program.

6.2.1 First study

In the first study two specific questions were considered. The first of these, addressed in Chapter 2, was:

> *Which characteristics of effective instructional development are most appealing to medical teachers when they consider participating in*

instructional development, and what are the factors underlying these preferences?

Regarding teachers' preferences three underlying factors were identified: (a) facilitating collaboration in educational improvement, (b) individual development as a teacher, and (c) evidence-based education. The first factor was somewhat heterogeneous in character, combining various items related to the design of instructional development programs. A number of these items had to do with collaboration and interaction with colleagues, while others were related to taking the working context into account in the design. The second and third factors were easier to label, using the wording of the high-loading items. Teachers' individual development was the central aspect in the second factor: learning from one's own teaching practice by means of reflection and feedback. In the last of the three factors items were combined that took the evidence from educational research as a foundation for instructional development.

The results showed that although almost all characteristics were important to medical teachers when they considered participating in instructional development, there were marked differences in preferences between individual teachers. None of these differences could systematically be related to various background variables such as time allocated to education or amount of experience, so we assumed that they originated from personal differences in preference. Seven characteristics were found to be relatively more important than the others. Three out of those seven concern the design of instructional development, and four refer to teachers' individual development.

The second specific research question addressed in the first study, covered in Chapter 3, was:

Which characteristics of effective instructional development do teacher educators consider most relevant when designing actual instructional development programs in medical schools?

To answer this research question we conducted semi-structured interviews with teacher educators from all eight medical schools in the Netherlands. All of them were experts in the design and implementation of instructional development programs. As a result of their experience as teacher educators they had practical knowledge about educational practices, about learners (i.e., medical teachers), and about how these learners learn. This knowledge is relevant for the design of instructional development programs. To explore the teacher educators' practical knowledge we asked them to identify relevant characteristics from the list compiled in the first study. Furthermore, they were asked to describe effective instructional development in their own

medical school, focusing on a specific instructional development program that they themselves considered to be an example of a successful "best practice". Fifteen characteristics were selected by the teacher educators as most relevant for teachers' learning.

The interviews were used to identify contextualized specifications of those fifteen characteristics. For example, "inclusion of alternative practices" was described by teacher educators as including new ideas in instructional development programs, such portfolios, observation of teaching sessions so that teachers can receive feedback, and new formats such as online sessions, role play, individual coaching, and peer group sessions.

6.2.2 Overview: which characteristics were selected by both teachers and teacher educators?

An overview of the selected characteristics of effective instructional development is displayed in Figure 6-1. It shows the sixteen characteristics identified by both the teachers and teacher educators: seven characteristics were selected by the teachers as most appealing, and fifteen were selected by the teacher educators as most relevant. Six characteristics were selected by both groups.

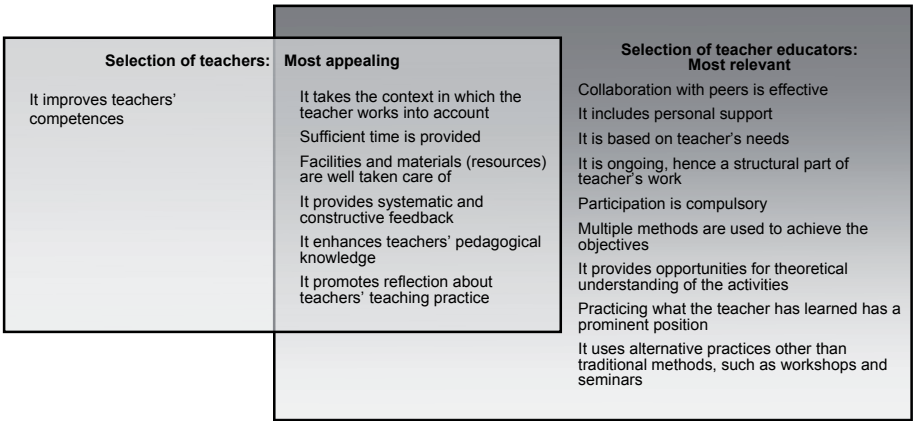

Figure 6-1. Overview of the characteristics selected in both studies

6.2.3 Second study

The first specific research question covered in the second study was:

Can characteristics of effective instructional development be used as a framework by which to understand why a specific short course is successful?

The successful short course "Train the Trainers" was selected as the subject of this study, because it is a popular short course in medical education in the Netherlands as well as in other countries such as the United Kingdom and Denmark. The course is generally rated highly satisfactory by participants, and is a good example of a popular instructional development program in higher medical education, probably because of its design as a short workshop. In order to find indications for the reason of its success, we analyzed the course using the characteristics found in the first study as a framework. Most of the characteristics of effective instructional development programs (ten out of sixteen) were found to be well-implemented in this course, in particular those selected by the teachers as most appealing.

We found that six characteristics from the list of sixteen had not been implemented well in Train the Trainers course. These six characteristics were related to the format of the course (personal support, use of alternative practices, inclusion of theory and practicing) and the time needed to follow the course (sufficient time and being ongoing). Interestingly, these six characteristics were among those that the teacher educators had selected as most relevant for teachers' learning, while most of the six were absent from the list of characteristics selected by the teachers as most appealing. Hence, it seems that the course is more in line with what is appealing to teachers than with what the teacher educators consider most relevant for teachers' learning.

The second research question covered in this second study was:

What do participants report to have learned from an additional course that included all characteristics selected?

An additional course (called the "Plus Course") was designed, based on all sixteen characteristics of effective instructional development (see Figure 6-1). The new program consisted of various sessions: three workshops (360° feedback session, session on video vignettes, and peer group discussion) and two one-hour web seminars (optional), scheduled over a five-month period. The Plus Course mainly focused on improving teachers' knowledge and skills concerning feedback, and on creating more awareness of their roles as teachers. A prominent aspect of the Plus Course was the great amount of time devoted to practicing with what the teacher had learned, by means of assignments that had to be completed in the daily work context.

An evaluation questionnaire geared to the learning outcomes of this new program, based on Kirkpatrick's four levels, was developed and distributed among the participants. The majority of the respondents were less satisfied with the Plus Course than with the Basic Course. They did, however, report a positive change in their learning, behavior, and the learning climate in actual teaching practice. Participants reported that they had become more aware of their role as a teacher and were more focused on their students; that they managed to create a more effective learning environment by providing more structured and more positive feedback; and that they were interacting more with students about their prior knowledge and skills.

Thus, the adapted program may be considered effective in terms of teachers' learning, since changes in learning, behavior, and learning climate were reported. There appears to be a tension between "what is best" according to the literature on effective characteristics, and "what is most desired" as measured by teacher satisfaction: although teachers reported that their teaching behavior had changed on the basis of the program, they were less satisfied with the Plus Course than with the Basic Course.

The final research questions covered in the second study were:

> *How can teachers' learning in the adapted instructional development program be visualized? What kind of learning sequences can be recognized in the various components of the program?*

To answer these questions, in-depth interviews were conducted with four participants of both the Basic Course and the Plus Course. They were questioned about what they had learned from the various sessions of the instructional development program: the Basic Course session, the 360° feedback session, the session on video vignettes, and the peer group discussion. The teachers mentioned various learning outcomes in the interviews, such as being more aware of their role as a teacher and acquiring new pedagogical knowledge and skills.

The participants' learning processes were analyzed using Clarke and Hollingsworth's model. In this model four domains are distinguished in which teachers' learning can take place. Diagrams are used to visualize different learning patterns as pathways through the domains. Some sessions resulted in patterns that included only one or two domains, while others included all four. The External domain, where the instructional development program is located, was the starting point for all diagrams constructed in this study. All teachers reported having learned from the program.

According to Clarke and Hollingsworth (2002) the complexity of the diagrams indicates the complexity of teachers' learning. A diagram with many

arrows (reflections and/or enactments) and including many domains suggests that a complex learning process took place. The diagrams resulting from the interviews indicated that the session that included feedback from students (Session 360° feedback) contributed most to teachers' learning. The most complex diagrams were found when there was a combination of theory and actual practice (practicing in the workplace), and when the student (located in the Domain of consequence) was actually included in the sessions.

6.3 MAIN CONCLUSIONS OF THE STUDIES

In this section we will address the main research question and summarize the general conclusions of our research.

> *What characteristics of effective instructional development are appealing to medical teachers and relevant for the design of instructional development programs for medical teachers, and what do these teachers learn from a specific program that takes into account those characteristics?*

Figure 6-1 depicts the sixteen characteristics that were identified in our first study as effective as well as appealing and relevant in medical education. They were selected on the basis of the literature (knowledge-for-practice), practical knowledge (knowledge-in-practice) of teacher educators, and by asking teachers about their preferences.

An existing instructional development program was analysed and expanded, an operation for which the sixteen effectiveness characteristics were used as a framework. Extending the program meant that more time was available for practicing in the workplace with what the participants had learned. Teachers reported having learned new skills about feedback, having become more aware of their role as a teacher, and being more focused on their students. By using Kirkpatrick's four levels and Clarke and Hollingsworth's model as frames of reference, it was possible to focus our analysis on what teachers had learned in the program and what learning processes could be distinguished in specific sessions of the program. Teachers reported what they had learned from the various sessions, and these data enabled us to construct diagrams that visualized the learning processes. In the diagrams, reflections and actions were included (see Section 6.3.4), as well as the different domains mentioned by the teachers. Including student feedback in the sessions resulted in diagrams indicating more complex and rich forms of learning, and this was also the case when theory and practice were integrated.

6.3.1 General conclusions

Our general conclusions can be divided into conclusions about characteristics of effective instructional development programs and about teachers' learning. Although the conclusions in this section are presented in units, they can be properly interpreted and understood only in combination with the information presented in the rest of this thesis.

Regarding characteristics of effective instructional development:

- Sixteen characteristics of instructional development were identified that can be used to design effective instructional development programs in the medical setting (Chapters 2 and 3).
- Combining this empirical research knowledge from effectiveness studies (*knowledge-for-practice*) with the practical knowledge of teacher educators and with teachers' own preferences, is a way to implement these characteristics into a specific training context in medical education (Chapters 2 and 3).

Regarding teachers' learning:

- The popularity of the Train the Trainer course among medical teachers can be ascribed to the fact that it has many characteristics of effective instructional development that are also important for medical teachers when they consider participating in instructional development (Chapter 4).
- In instructional development programs there appears to be a tension between what is best according to teacher educators (as indicated by the characteristics), and what is most desired by participants (as indicated by participation rates and satisfaction) (Chapter 4).
- Although teachers report less satisfaction with a course that was more consistent with teacher educators' preferences, the same teachers also report changes in their behavior, learning, and learning climate in interactions with their students.
- The Clarke and Hollingsworth model (2002) is a helpful frame of reference in which to represent learning sequences in the field of instructional development in medical education.
- The impact of instructional development programs on teachers' learning might be improved by including characteristics that relate teachers' learning to their Domain of practice and their Domain of consequence (Chapter 5).

6.4 DISCUSSION

With regard to the results of the studies in this research project several points of discussion can be raised. In this section we will discuss our findings regarding the characteristics of effective instructional development, the instructional development program, and teachers' learning.

6.4.1 Characteristics of effective instructional development

Medical instructional development in comparison with the general educational field

Although the field of medical education seems to have its own specific approach to facilitate medical faculty in their roles as teachers, our results suggest that instructional development in medical education is not essentially different from instructional development in other fields. In the studies described in Chapters 2 and 3 we found that from a list of characteristics, compiled from reviews of both medical and general instructional development programs, medical teachers as well as medical teacher educators selected characteristics from both fields as appealing (teachers) or relevant (teacher educators). However, it is not possible either to say that there was a clear preference for the characteristics derived from research studies in the medical field, as brought together in the review by Steinert et al. (2006), over characteristics from the general empirical field (Guskey 2003). This suggests that instructional development in the medical context could benefit from results from the general educational field regarding the design of instruction programs. Since both fields have their own focus and research traditions, increased interaction between these disciplines will be an enrichment for both. Our findings are in line with those of Steinert et al. (2006), who in their review of the medical education literature state that many of their findings are similar to what has been found in literature reviews on the training of university teachers in general. They advised researchers investigating instructional development in medical education to explore and learn from the relevant literature outside the medical field, incorporate those findings and methodologies into new research in the context of medical education, and collaborate with researchers in the field of higher education. On the other hand, findings in medical education could also be of interest for general educational research (cf., Weimer and Lenze, 1997).

Using the characteristics of effective instructional development as a framework

The method of combining results from the literature with teachers' preferences and the selection made by teacher educators, thus using their practical knowledge, provided us with additional information relevant to the medical context of our research. The sixteen characteristics selected were used as a framework to study an existing successful program and later to adapt that program. According to Guskey (2003) it would be unrealistic to assume that one single list of characteristics would emerge, because of the complexity of the context. He states that by agreeing on criteria for "effectiveness" and by providing clear descriptions of important contextual elements of instructional development programs, this type of research would improve in quality. The framework of our research is close to what he describes: it offers the elements which are important, and leaves space for contextual adaptations.

This framework proved useful as it showed that in a well-known course that is widely considered to be successful, most of the characteristics of effective instructional development were well-implemented. Interestingly, almost all characteristics that were considered important by teachers were among those that were well implemented in this successful course, whereas some of the characteristics labelled most relevant by teacher educators were less well implemented. Apparently, the design of the existing successful course was mainly in line with teachers' preferences.

Tension between "best" and "what is most desired" by teachers in instructional development

The characteristics of effective instructional development that were found to need more attention in the course were mainly those that the teacher educators had indicated as relevant for teachers' learning. We found that if those characteristics were taken into account in the design of a program (the Plus Course), the teachers reported having learned on the Learning, Behavior, and Results levels in the Kirkpatricks' model, but that their satisfaction with the course was lower than with the Basic Course. This suggests a difference between "what is best" in the design of instructional development programs according to the results from the literature, and "what is desired" by medical teachers as indicated by the preferences and satisfaction reported.

Given the fact that Steinert et al. (2006) found that almost all articles studied in the medical context reported a high satisfaction on the part of teachers, it is likely that in the design of instructional development programs in medical education the emphasis is more on "what is desired" than on "what is

best". Teacher educators and program developers in the medical context may consider the attractiveness of these programs relatively more important than their counterparts in the general educational field, because it is more difficult to convince medical teachers to participate. Unlike teachers in general education, many medical teachers have never participated in educational instructional development programs (in our study 53% of medical teachers had not yet participated in any such program). By designing a program that is appealing to teachers the developers possibly hope to attract those new teachers. However, if teacher educators only focus on teachers' preferences they will miss opportunities to design a program that is as effective as possible. Nevertheless, an instructional development program will have to strike a compromise between "attractive to teachers" and '"as effective as possible", because teacher educators want not only an effective program in terms of teachers' learning, but also a high participation rate.

6.4.2 Improving instructional development

Including students in instructional development

In our study (Chapter 5) we found that including students (i.e., including the Domain of consequence) in an instructional development program led to teachers' reporting complex teacher learning, including reflections and actions (enactment). It was especially the students' individual feedback to their teacher that resulted in complex learning diagrams. As students are the target group of teaching, it is not surprising that they can be a useful source of information for teachers. From the literature it is known that student ratings (as well as other input from students) can provide teachers with feedback, advice, and support by which to improve teaching (Prebble et al. 2004). These student evaluations might be useful, valid, and reliable (Menges & Austin 2001). Weimer and Lenze (1997) state in their review that consultation with a staff member over student ratings has been found to have a significant and positive impact on teachers' learning.

Interestingly, characteristics that refer to the inclusion of students in instructional development programs were not among those selected by the teachers and teacher educators in the sixteen effectiveness characteristics. This is in line with the review by Steinert et al. (2006), in which the importance of including students is not highlighted either. However, this finding goes against Guskey's review (2003), in which two characteristics that include students are formulated: one indicating that data on student learning should be used, and the other indicating that students' backgrounds and interests are important for teachers. Steinert et al. (2006) do not include the students because many publications in medical education literature do not focus on students. This may

be explained by the fact that medical specialists' first concern is patient care rather than student learning (Dolmans et al., 2004), which results in clinical teachers being more focused on their patients than on their students. In this thesis we found that student results are important for teachers' learning. It would, therefore, be advisable to include the students in future instructional development programs. This could take the form of practical assignments, in which teachers ask their students for feedback.

Linking theory and practice, including assignments

After the adapted instructional development course, teachers reported having learned new feedback skills, having become more aware of their role as a teacher, and having become more focused on their students. Teachers seemed to have shifted to a more student-centered approach after participating in the adapted course. The increased focus on the students is in line with Gibbs and Coffey (2004), who uses the Approaches to Teaching Inventory (Trigwell et al., 1999) in their study. They show that after participating in a 4-18 month training program, teachers became less teacher- and more student-centered. Postareff et al. (2007) have also, in their one-year pedagogical training, found a change towards more student-centeredness by the participants, although they show that this change occurred slowly, and their results imply that an intensive pedagogical training (in their course: 10-12 EC) is needed before positive changes in approaches to teaching emerge.

In Chapter 5 we focused on specific sessions and compared them to the learning outcomes. It was especially the sessions combining theory and practice, and those that included assignments involving students, that led to complex diagrams, indicating that teachers had reported having learned a great deal. We expect the sessions that enable teachers to link their new knowledge and skills to teaching practice (Domain of practice) and to the students (Domain of consequence) to be important for obtaining complex learning results. Characteristics that might stimulate this link could be related to characteristics that change teachers' Personal domains (e.g., promotion of reflection, the inclusion of pedagogical knowledge) and their Domains of practice (e.g., provision of feedback, inclusion of experiments). We also think that the scheduling of the program over a longer period was important, as teachers had more time to experiment with what had been learned in actual practice. Holton et al. (2000) identify three factors that are considered primary variables whose interaction affects the transfer of learning from the training environment to the work environment: (a) The ability of participants to use the skills learned in the work setting, (b) their motivation to use them, and (c) the support from the work environment in the use of these skills. The scheduling over a longer period and

the integration of theory and practice are in line with the first variable presented by Holton et al. (2000). The motivation to use what is learned (second variable) will be stimulated if teachers see the effects of their change of teaching behavior, e.g., more motivated students or better results. Holton et al.'s (2000) last variable, about the supportive working environment, is more difficult to influence by teacher educators, as this support is the responsibility of policy makers.

Evaluating teachers' learning

In order to improve instructional development programs it is important to evaluate the impact of those programs and to study the underlying learning processes. In general, Kirkpatrick's Reaction level is the only level that is measured in the evaluation of instructional development programs. This evaluation usually takes the form of a "happiness rating" measuring participants' satisfaction with the experience and their appraisal of the usefulness of the program in their work (Sparks, 1994), with no attempt to measure higher levels of effectiveness (Prebble et al., 2004), and without addressing the issue of achieving change (Guskey, 2000).

In this study we applied two other techniques to evaluate an instructional development program: we used not only Kirkpatrick's levels as a format for measuring impact on more than the Reaction level, but also the Clarke and Hollingsworth model, which made it possible to visualize the teachers' learning processes in the various sessions of the program, enabling us to see which sessions led to complex learning. These other methods of evaluating can provide teacher educators with additional information about teachers' learning and about underlying factors affecting this learning that cannot be derived from regular evaluation forms.

The two models seem to overlap, so it would be interesting to compare the Kirkpatrick model with the Clarke and Hollingsworth model in order to identify similarities and differences. The first model (Kirkpatrick's four levels) is displayed in Figure 6-2, and the second in Figure 6-3. The models have different goals: the first was constructed to identify the effects of a program, and the second to visualize a more "complete" picture of the learning processes, including the possible effects and the various factors that influence teachers' learning. This explains why in the second model (Clarke & Hollingsworth, 2002), teacher satisfaction (Reaction level) is not taken into account, because this does not provide information about the learning process. Instead of this level the model includes an External domain, related to information that may have initiated the learning processes, such as a specific instructional development program. The Clarke and Hollingsworth model is a non-linear model which can be used to visualize teachers' learning. Kirkpatrick's model contains four levels, which are

not linked to each other, although in various publications (e.g., Steinert et al., 2006) the levels are used hierarchically.

Although the two models differ, they also seem to have many similarities. They both display change (teachers' learning) and their four different levels/ domains seem to be comparable to each other. In Figures 6-2 and 6-3 the levels/domains that seem to be similar are indicated by the same shading. It becomes clear that the Learning level is comparable to the Personal domain, the Behavior level to the Domain of Practice, and the Results level to the Domain of consequence.

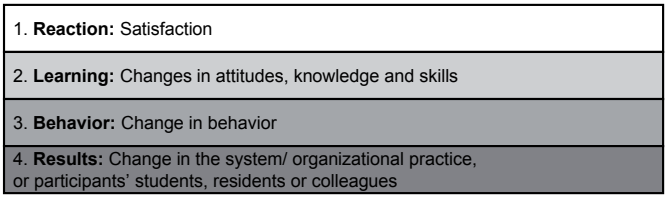

Figure 6-2. Overview of Kirkpatrick's levels, adapted by Steinert et al. (2006)

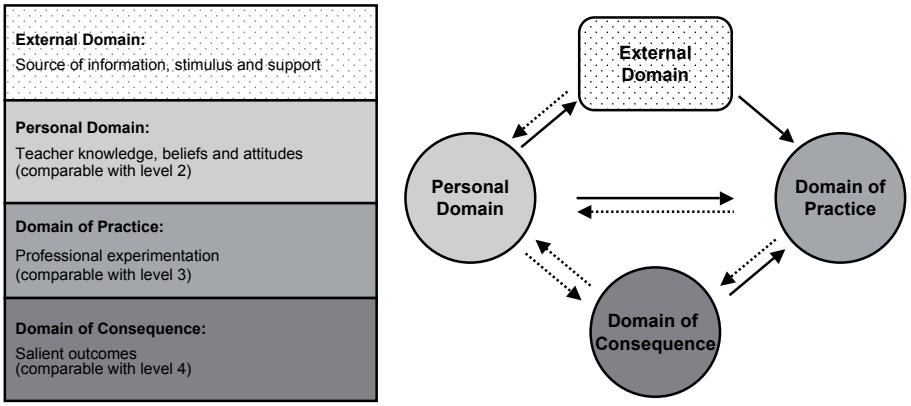

Figure 6-3. Model of teacher's professional growth (Clarke & Hollingsworth, 2002)

Clarke and Hollingsworth's model is the most attractive for understanding underlying processes, because besides learning effects it also takes learning processes into account. It is generally known that the Results level (e.g., students) is difficult to attain in instructional development programs (Stes, Min-Leliveld, et al., 2010). The Clarke and Hollingsworth model might explain this: a change in the Domain of consequence (e.g., students), as facilitated by an instructional

development program (External domain) needs to be preceded by changes in the Personal domain and/or the Domain of practice.

Teacher satisfaction (Reaction level) does not reflect teachers' growth, and hence is not included in the Clarke and Hollingsworth model. Weimer and Lenze (1997) already concluded that participants' reactions do not contribute to a clear picture of the real impact of instructional development, and that it is questionable whether this level can be used as a measure of impact. Thus, in reviews on the evaluation of effects of instructional development programs this level is not always included (e.g., Stes, Min-Leliveld, et al., 2010). Unlike Stes, Min-Leliveld at al. (2010) we did include the Reaction level (satisfaction) in our study, as we think that the information on this level might alert us to possible reasons why teachers would or would not report teacher learning. This level might be considered a pre-condition for attaining the other three levels of Kirkpatrick (1994).

6.5 STRENGTHS AND LIMITATIONS OF OUR RESEARCH

For this research project several strengths and limitations can be identified.

6.5.1 Strengths

A first strong point of the research project is that we have combined results from the literature (knowledge-for-practice) with the knowledge and preferences of medical teachers and teacher educators (knowledge-in-practice) in order to adapt the available information to the context of medical education. This resulted in a selection of characteristics that appealed to teachers, were considered relevant by teacher educators, and were described as effective in the literature. Integrating this knowledge-for-practice with practical knowledge and knowledge of teachers' preferences is something that is not yet common in the instructional development literature, but that we recommend because it might help to translate theory into actual practice (and so bridge a gap).

A second strength is that we have combined the results found in general education literature (e.g., research on teacher education and research on higher education) with those from medical education literature. In general, those two research fields are worlds apart: they have their own conferences, their own journals, their own research traditions, and their own terminology. Combining results from both fields makes it possible to find overlapping themes and to combine bodies of knowledge. The literature on teaching in higher education and teacher education in general has a longer research tradition in the field of instructional development, so that this literature may contribute to the development of theoretical knowledge in medical education. In the medical educational field the topic of instructional development is very popular at the

moment, and much research is being conducted internationally. An advantage of the research in this field is that, contrary to the situation in the general educational field, the curricula of the medical schools are quite similar in many countries, facilitating the comparison of results.

A third strength of our research is that we have used alternative ways to evaluate an instructional development program. Using the Kirkpatrick model as a framework has produced a variety of information on the effects of the program on teachers' learning, as, besides satisfaction, it also focuses on actual learning, behavioral changes, and changes in the student. This model might be integrated into the regular evaluation forms. The Clarke and Hollingsworth model can be used to provide in-depth insight into the underlying learning processes of teachers. The sessions that contributed to complex learning patterns should be considered the components most powerful for learning. Teacher educators could use this information in the development of adapted programs.

6.5.2 Limitations

There are several issues that limit the scope and, consequently, the conclusions from our study. A first constraint of the study was that we combined two reviews (Guskey, 2003; Steinert et al., 2006). This raises the question whether the reviews selected (from two different fields) are the most relevant and complete overviews of characteristics of effective instructional development. Also, combining two reviews results in overlap between the various characteristics. We combined some overlapping items, and used teachers' preferences and teacher educators' practical knowledge as a filter to finally select sixteen characteristics from this list, in order to make sure that the final selection was relevant for this context. This still does not guarantee that the selection is complete. New reviews may introduce new characteristics that have not been taken into account in our selection. We should also be careful not to use specific effectiveness characteristics in isolation, as this can lead to a fragmented and mechanistic view which does not do justice to the complexity (Doyle, 1990). We have to take into consideration that whether or not the characteristics contribute to effective learning also depends on the individual context.

A second limitation was the fact that the study presented in Chapters 4 and 5 only included participants in one specific instructional development program who were all affiliated with the Leiden University Medical Center. This means that, strictly speaking, conclusions can be drawn only about this instructional development program, in this center, and in the Netherlands. The chosen instructional development program (Train the Trainers), however, is used in almost all Dutch medical schools in a comparable format, so similar results are to be expected in other schools. Similar courses also exist abroad.

Although the differences between the medical centers in the Netherlands and other international medical schools are much smaller than the similarities, we still should be cautious about generalizing our findings.

A third limitation of our study was that it depended on medical teachers' self-reports. We did include feedback from students, but did not include results related to the actual behavior of teachers. The choice to rely on teachers' self-reports was made in order to limit the time investment asked from the busy medical teachers. Our program was set up in such a way that it took more of the teaching staff's time than usual, and researching their behavior would have stressed their time schedule even more. Moreover, collecting data on the actual behavior of the specialists in learning-by-doing situations would unavoidably have involved patient contacts, which could have led to precarious situations. Finally, we may mention that we have the impression that medical teachers as a group are quite direct in their answers and comments, so that there was a relatively low risk of our receiving only socially desirable answers.

6.6 IMPLICATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

In this section we will discuss ideas for future research, and practical implications for policy makers, teacher educators, and teachers.

6.6.1 Future research

In our explorative study we adapted a popular instructional development program (Chapter 4). We were able to show that this adapted program facilitated teacher learning. In future research we recommend setting up design-based research, using the sixteen characteristics identified in this study in other medical schools in order to further adapt and improve instructional development programs. A suggestion could be to use the Basic Course as a starting point, but other programs could also be used. We recommend including various centers in the data collection, so that a "second phase study" (Borko, 2004) may be carried out. Borko (2004) distinguished various phases in research, related to a time sequence. In phase one, research on a new type of program is started on a single program on one site (as in this thesis). The research proposed above would be a second-phase study in which a single program is analyzed on multiple sites with multiple facilitators. The third phase would include comparative field studies, including multiple programs on multiple sites.

Further research should also include a control group, or the "internal referencing strategy" (Haccoun & Hamtiaux, 1994). In this strategy one single group is used, but specific test items are identified that would not be expected to change from pre-test to post-test. Comparing the changes in these training-

irrelevant items with the changes in items that are considered relevant would make it possible to study the effectiveness of the training.

Further research might also include longitudinal studies, in order to determine if changes as found in our research would last over a longer period. Most research focuses on the direct rather than the long-term effects of instructional development programs. Rubak et al. (2008) studied the effects of the Train the Trainers course after six months, and found positive outcomes. In future research it would be important not only to rely on teachers' self-reports, but also to include observations of actual behavior and results from the students, for example by using the Cleveland clinic's clinical teaching effectiveness instrument (Copeland & Hewson, 2000), the Pheem questionnaire (Roff, McAleer, & Skinner, 2005), or the Student course experience questionnaire (Ginns, Prosser, & Barrie, 2007). These questionnaires would require a larger group of respondents, so for future research a larger-scale study is recommended.

We did not focus on the professional development of staff members regarding, for example, their leadership roles. Steinert (2000) indicates that, due to changes in medical education, focusing exclusively on the development of medical staff in their role as teachers will no longer be sufficient. Future research might focus on more than instructional development only, for example by including the professional development of staff members regarding leadership capacities.

In the study described in Chapters 5 and 6 we found that participants were less satisfied with the adapted program, but reported having learned much. A final direction for future research might be to investigate the relation between satisfaction (Kirkpatrick's Reaction level) and actual learning. Kessels (2010) distinguishes two aims in an induction program for teachers: one being teachers' well-being (satisfaction), and the other the actual learning of teachers. It would be interesting to investigate if those two are really separate, as Kessels (2010) found, or that satisfaction is a prerequisite for participation in those programs, as we supposed in the Introduction.

6.6.2 Practical implications

In this section the possible practical implications of our findings for higher education are discussed, and recommendations are formulated for teachers as well as for policy makers, program developers, and teacher educators.

Implications for teachers

In this research project we selected sixteen characteristics (Figure 6-1) that should be part of effective instructional development programs. As part of this selection procedure we looked at teachers' preferences, and found that an

existing successful course fitted these preferences well but that improvements in the program, based on the effectiveness characteristics, could lead to more effect on teachers' learning. An example of such an improvement is to include characteristics mentioned in Figure 6-1 as needing more attention in the implementation, such as the introduction of practicing in teaching practice, personal support, and the extension of the program over time. When selecting an instructional development program, teachers are advised to look for programs that include these characteristics. In this way they can be more sure that their valuable time is well spent, as they will participate in program that is both well-designed and effective.

In Chapter 5 we indicated that it is important to include information from the students or regarding their performance in the instructional development program. For example, feedback from the students led to more awareness about the participants' roles as teachers and also stimulated teachers' reflection. Teachers are advised to ask students for specific feedback and discuss the feedback with the students in order to improve teaching quality.

In our research we identified relevant knowledge-for-practice. We asked teachers about their preferences when participating in instructional development programs, and teacher educators about their practical knowledge about the design of these programs. Involving stakeholders in instructional development in the design of a program is a good way to ensure it specifically fits the local context. Teachers are, therefore, encouraged to join task forces that advise their institution on instructional development.

Implications for teacher educators, program developers, and policy makers

The sixteen characteristics (Figure 6-1) of effective instructional development can be used as a framework for the analysis of existing instructional development programs, as well as for the design of new ones. In Chapter 4 we showed that teachers participating in a program that was adapted according to this framework reported having learned much, even though they claimed to be less satisfied with the additional course than with the Basic Course. Therefore, it is important to monitor participation rate and satisfaction as well as actual learning in the newly constructed programs, .

In their daily working environment medical teachers are normally more focused on their patients than on their students, even if they are in their role as a supervisor for their students. Programs for medical teachers should therefore be aimed at shifting the teachers' focus in the workplace from the patient to the student during supervision. Including the students in the instructional development programs, for example in video vignettes or by collecting feedback from them, could accelerate this learning process (see also Chapter 5).

In Chapters 4 and 5 we described two different methods that we used to study teachers' learning. These two methods provide teacher educators and policy makers with complementary information on teachers' learning. The type of information gathered by studying the Kirkpatrick levels and the Clarke and Hollingsworth model can be used in combination, in order to further improve instructional development programs. By strengthening components that are reported to be useful, and by changing those aspects that did not lead to learning, important improvements can be obtained. Our questionnaire, based on Kirkpatrick's four levels, could be a starting point for the further development of instruments for the evaluation of instructional development programs on more than just the Reaction level.

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Summary

Summary

INTRODUCTION

Teachers in higher education are experts in *what* to teach. They are not experts in *how* to teach, because they received little or no training in teaching and they are in generally more oriented towards their discipline than to the profession of teaching. Medical teachers, as a specific group of teachers in higher education, are first and foremost medical specialists that take care of their patients and do their research. They are, however, also the persons who have to teach students how to become medical specialists themselves. As nowadays specialists seem to become ever busier in their own clinical practice, the reduction in time left for teaching makes it more challenging to be effective teachers. The quality of their teaching influences the development of medical students' competence, and therefore the quality of medical care in the future.

To help these teachers to improve the quality of their teaching, several instructional development programs are available consisting of, for instance, workshops, seminars, or longer training trajectories. The effectiveness of the programs is likely to increase when they are adapted on the basis of the results of research into characteristics of effective instructional development programs. In order to design effective instructional development programs that are also likely to work in practice, it is not only the results of previous evaluation studies, but also the knowledge and conceptions of teachers and teacher educators and their preferences that should be taken into account, as these influence motivation, teaching, and learning.

RESEARCH QUESTIONS AND RESEARCH DESIGN

In this research project we wanted to identify characteristics of effective instructional development that are appealing to medical teachers and relevant for medical education. Furthermore, we wanted to know if medical teachers' learning improved if an instructional development program was adapted in such a way that it included more of these characteristics. The following research questions were central in this thesis:

- Which characteristics of effective instructional development are most appealing to medical teachers when they consider participating in

instructional development, and what are the factors underlying these preferences? (Chapter 2)

- Which characteristics of effective instructional development do the teacher educators consider most relevant when designing actual instructional development programs in medical schools? (Chapter 3)
- Can characteristics of effective instructional development be used as a framework by which to understand why a specific short course is successful? What do participants report to have learned from an additional course that includes all characteristics selected? (Chapter 4)
- How can teachers' learning in the adapted instructional development program be visualized? What kind of learning sequences can be recognized in the various components of the program? (Chapter 5)

To answer these questions we conducted two studies. In the first study, described in Chapters 2 and 3, we focused on selecting characteristics of effective instructional development programs for the medical context. In this study teachers and teacher educators were asked to indicate which of 35 characteristics that had been derived from the literature on effective instructional development (Guskey, 2003; Steinert et al., 2006) were important to them. In the second study, on which we report in Chapters 4 and 5, we used the characteristics collected in the first study as a framework to analyze a successful instructional course called *Train the Trainers*. This provided insight into its effectiveness and impact. We constructed a new instructional development course, using the information from the framework, and studied the learning processes of the medical teachers who participated in this *Plus Course*. In Sections 1.1.1 and 1.1.2 we have summarized these two studies in more detail.

STUDY 1

Chapter 2 addresses the research question:

> *Which characteristics of effective instructional development are most appealing to medical teachers when they consider participating in instructional development, and what are the factors underlying these preferences?*

To answer this question we administered an on-line questionnaire to medical teachers at the Leiden University Medical Center in the Netherlands. The questionnaire contained questions about the importance of 35 effectiveness characteristics for the medical teachers when they considered participating in instructional development programs. These 35 characteristics had been derived from reviews of the literature on effective instructional development (Guskey, 2003; Steinert et al., 2006). Data were gathered from 360 medical teachers.

We identified three underlying factors in the teachers' preferences, which we labeled (a) facilitated collaboration in educational improvement, (b) individual development as a teacher, and (c) evidence-based education. The first factor is the most heterogeneous, and combines items that relate to the design of instructional development programs. Items that load high on the second factor have to do with the importance of characteristics that relate to the teacher's individual development (e.g., learning from one's own teaching by means of reflection). In the third factor items were combined that concerned the basing instructional development on the evidence from educational research. Although almost all characteristics were found to be of relatively high importance teachers when selecting an instructional development program, there were marked differences in preferences between individual teachers. Further analyses yielded seven characteristics with relatively high mean scores. Three of them concerned the design of instructional development programs, and four referred to teachers' individual development. Since none of these differences could be related to any of several background variables such as time allocated to education or amount of experience, we assumed that they originated from personal differences in preference.

The third chapter focuses on the research question

> *Which characteristics of effective instructional development do teacher educators consider most relevant when designing actual instructional development programs in medical schools?*

To answer this question, semi-structured interviews were conducted with teacher educators from all eight medical schools in the Netherlands. All teacher educators interviewed are experts in the design and implementation of instructional development programs. As a result of their experience as teacher educators, they possess *practical knowledge* about educational practices, about learners, and about how those learners learn. This practical knowledge was explored by asking them to identify relevant characteristics from the list compiled in the first study. An additional strategy to investigate the practical knowledge of teacher educators was to ask them to describe instructional development programs in their own medical school that they considered "best practice". This enabled them to explicate practical knowledge that was relevant to their own professional practice, and was not explicitly connected to their choices from the previous list. From these interviews we were able to derive a total of 15 characteristics that teacher educators considered most relevant for the design of instructional development programs. The interviews were further used to identify contextualized specifications of those 15 characteristics.

Figure A shows the characteristics chosen by the teacher educators as "most relevant". This figure also indicates the seven characteristics that were chosen as "most appealing" by teachers, as reported in Chapter 2. As there was an overlap between the selections of both groups in this first study (Chapters 2 and 3), ultimately 16 characteristics were distilled.

STUDY 2

In the second study we investigated whether the 16 characteristics identified in the first study could be used as a framework for the analysis and improvement of an instructional development program. Thus, in Chapter 4 we addressed the research questions:

> *Can characteristics of effective instructional development be used as a framework by which to understand why a specific short course is successful? What do participants report to have learned from an additional course that includes all characteristics selected?*

The successful short course *Train the Trainers* (referred to as the *Basic Course*) was selected as the subject of our study, since it is a popular short course in the medical domain and generally rated highly satisfactory by participants (Rubak et al., 2008). We found that the majority of the characteristics (10 out of 16) were well implemented in this course, in particular those that had been selected by the teachers as most appealing. The six characteristics that were less well implemented were among those that the teacher educators had selected as being most relevant for teachers' learning. So, the course was more in line with what appealed to teachers than with what in the eyes of the teacher educators was relevant for their learning . We designed an additional course, the *Plus Course*, based upon all 16 characteristics of effective instructional development. It consisted of various sessions scheduled over a five-month period and consisting of three workshops (a 360° feedback session, a session on video vignettes, and a peer group discussion). The Plus Course mainly focused on improving teachers' knowledge and skills concerning feedback, and on creating more awareness among participants of their roles as teachers. Interestingly, despite the changes in behavior, learning, and learning climate reported for the *Plus Course*, the participants were less satisfied with the *Plus Course* than with the *Basic Course*.

In Chapter 5 we describe our search for more detailed information about the learning process of the participants in the adapted instructional development program. We focused on the research questions

How can teachers' learning in the adapted instructional development program be visualized? What kind of learning sequences can be recognized in the various components of the program?

In-depth qualitative interviews were conducted with four teachers who had participated in both the *Basic Course* and the *Plus Course,* focusing on what they had learned from the various sessions in the instructional development program: the Basic Course session, the 360° feedback session, the session on video vignettes, and the peer group discussion. Learning outcomes included being more aware of their role as a teacher, and gaining new pedagogical knowledge and skills. We chose the model developed by Clarke and Hollingsworth (2002) as a frame of reference. This model can be used to visualize teachers' learning in four domains and the relations between them. The domains distinguished are: the External Domain (e.g., the instructional development program), Personal domain (e.g., teachers' knowledge), Domain of practice (e.g., everyday practice), and Domain of consequence (e.g., student results). On the basis of the interview data we constructed diagrams that visualized what the teachers said they had learned. The External domain, where the instructional development program is located, was found to be the starting point for all diagrams drawn in this study, indicating that the teachers really had learned from the various sessions of the instructional development program. Complex diagrams, indicating a great increase in learning, were found when student feedback was included in the sessions and when theory and practice were integrated. We conclude that the impact of instructional development programs on teachers' learning may be improved by including characteristics that relate teachers' learning to their Domain of practice and their Domain of consequence.

CONCLUSIONS AND DISCUSSION

Our general conclusions can be categorized into conclusions about characteristics of effective instructional development programs and about teachers' learning.

Regarding characteristics of effective instructional development:

- Sixteen characteristics of instructional development were identified that can be used to design effective instructional development programs in the medical setting (Chapters 2 and 3).
- Combining this empirical research knowledge from effectiveness studies (*knowledge-for-practice*) with the practical knowledge of teacher educators and with teachers' own preferences is a way to implement these characteristics into a specific training context in medical education (Chapters 2 and 3).

Regarding teachers' learning:

- The popularity of the Train the Trainer course among medical teachers can be ascribed to the fact that it has many characteristics of effective instructional development that are also important for medical teachers when they consider participating in instructional development (Chapter 4).
- In instructional development programs there appears to be a tension between what is best (as indicated by the characteristics) according to teacher educators, and what is most desired by participants (as indicated by participation rates and satisfaction) (Chapter 4).
- Although teachers report less satisfaction with a course that was more consistent with teacher educators' preferences, the same teachers also report changes in their behavior, learning, and learning climate in interactions with their students (Chapter 4).
- The Clarke and Hollingsworth model (2002) is a helpful frame of reference in which to represent learning sequences in the field of instructional development in medical education (Chapter 5).
- The impact of instructional development programs on teachers' learning might be improved by including characteristics that relate teachers' learning to their Domain of practice and their Domain of consequence (Chapter 5).

We consider combining existing information about effective characteristics of professional development with the practical knowledge of teacher educators and teachers' opinions to be one of the strengths of the present study. An important limitation concerns the small sample sizes in some parts of the investigation, due to the labor-intensive character of some of our explorations. From our study various recommendations may be derived about how to adapt existing instructional development programs in medical education in such a way that they become more consistent with research results about effective characteristics, as well a with teachers' and teachers educators' preferences. In future research a longitudinal approach would be advisable in which classroom behavior is also measured directly, and student results are taken into account.

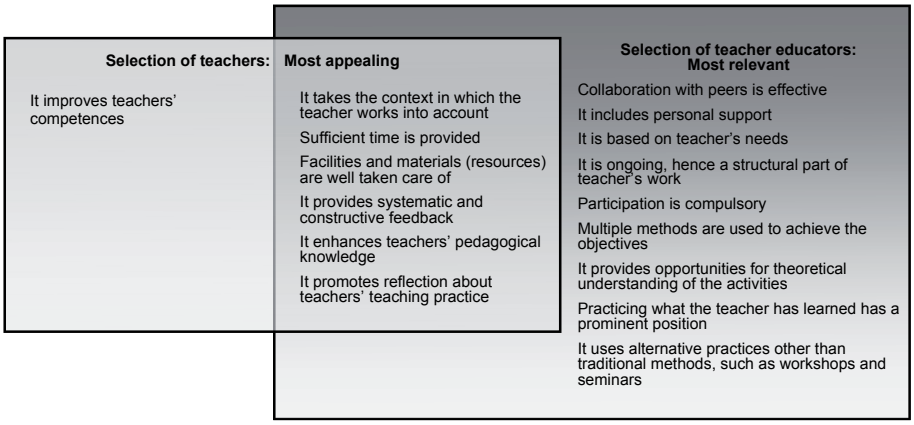


Figure A. Overview of characteristics selected by teachers and teacher educators

Nederlandse samenvatting

Docenten in het hoger onderwijs zijn experts in wát zij doceren, maar niet noodzakelijk in hóe zij dit zouden moeten doen. Dit komt omdat zij vaak weinig tot geen training hebben gehad in het lesgeven. Daarnaast zijn zij over het algemeen meer georiënteerd op hun eigen vakgebied dan op hun rol als docent.

In dit proefschrift concentreren we ons op een specifieke groep in het hoger onderwijs: de medische docenten. Deze docenten zijn in de eerste plaats medisch specialisten, die zorg dragen voor hun patiënten en het medisch onderzoek. Zij zijn echter ook degenen die hun studenten zullen opleiden tot medisch specialisten. Omdat het aantal taken binnen de medische praktijk zich uitbreidt, lijkt er steeds minder tijd over te blijven voor medisch docenten om onderwijs te geven aan studenten. Hierdoor wordt het steeds lastiger om een effectieve medisch docent te zijn. Dit is zorgelijk, omdat de kwaliteit van het onderwijs belangrijk is voor het opleiden van medisch studenten tot competente artsen, om zo de kwaliteit van de medische zorg in de toekomst te behouden.

Om de medisch docenten te ondersteunen bij het verbeteren van hun onderwijs zijn er verschillende professionaliseringsprogramma's beschikbaar, vaak in de vorm van workshops, seminars of meerdaagse trainingsprogramma's. De effectiviteit van deze programma's is echter niet altijd optimaal. Er is veel wetenschappelijk onderzoek gedaan naar kenmerken van effectieve docent-professionalisering. Door het toepassen van deze kennis zouden programma's kunnen worden ontworpen die daadwerkelijk effectief zijn voor docenten. Ook de kennis, opvattingen en voorkeuren van docenten en opleiders zouden moeten worden betrokken bij het ontwerpen, omdat dit de motivatie en het leren van docenten kan beïnvloeden.

ONDERZOEKSVRAAG EN ONDERZOEKSONTWERP

Het onderzoek had tot doel om kenmerken van effectieve docentprofessionalisering te identificeren. Deze kenmerken moeten aansprekend zijn voor docenten en relevant voor de medische context. Tevens wilden we onderzoeken of het leren van medisch docenten zou verbeteren wanneer een docentprofessionaliseringsprogramma zo zou worden aangepast dat het aan meer van deze effectiviteitskenmerken voldeed. De volgende onderzoeksvragen stonden centraal in dit onderzoek:

- Welke kenmerken van effectieve docentprofessionalisering zijn het meest aansprekend voor medisch docenten die van plan zijn deel te nemen aan een professionaliseringsprogramma, en welke onderliggende factoren kunnen hieruit worden afgeleid? (hoofdstuk 2)
- Welke kenmerken van effectieve docentprofessionalisering vinden opleiders het meest relevant bij het daadwerkelijk ontwerpen van programma's voor de professionalisering van medisch docenten? (hoofdstuk 3)
- Kunnen kenmerken van effectieve docentprofessionalisering worden gebruikt om te begrijpen waarom een specifieke, bestaande korte cursus zo succesvol is? Wat rapporteren deelnemers geleerd te hebben van een speciaal daarvoor ontworpen aanvullende cursus, die voldoet aan alle geselecteerde kenmerken van effectieve docentprofessionalisering? (hoofdstuk 4)
- Hoe kan het leren van docenten in het aangepaste docentprofessionaliseringsprogramma zichtbaar worden gemaakt? Welke leersequenties kunnen geïdentificeerd worden in de verschillende onderdelen van het programma? (hoofdstuk 5)

Om deze vragen te beantwoorden hebben we twee studies uitgevoerd. In de eerste studie, die wordt beschreven in hoofdstuk 2 en 3, is de selectie van kenmerken van effectieve docentprofessionalisering in de medische context het hoofdthema. In deze studie werd een lijst van 35 kenmerken van effectieve docentprofessionalisering samengesteld uit de literatuur (Guskey, 2003; Steinert et al., 2006). Vervolgens werd aan docenten en opleiders gevraagd om uit deze lijst kenmerken te selecteren die voor hen belangrijk waren.

In de tweede studie, beschreven in hoofdstuk 4 en 5, hebben we de geselecteerde kenmerken uit de eerste studie gebruikt als een kader om de succesvolle cursus 'Train de Trainer' (Basis Cursus) te analyseren. Dit gaf ons inzicht in de effectiviteit van deze cursus. Op basis van deze analyse ontwierpen we een aanvullende professionaliseringscursus en onderzochten de leerprocessen van de deelnemende medisch docenten aan deze 'Plus Cursus'.

EERSTE STUDIE

De eerste studie bestaat uit twee delen, beschreven in de hoofdstukken 2 en 3 van dit proefschrift. In hoofdstuk 2 staat de volgende onderzoeksvraag centraal:

> *Welke kenmerken van effectieve docentprofessionalisering zijn het meest aansprekend voor medisch docenten die van plan zijn deel te nemen aan een professionaliseringsprogramma, en welke onderliggende factoren kunnen hieruit worden afgeleid?*

Om deze vraag te beantwoorden hebben we een online vragenlijst uitgezet onder medisch docenten van het Leids Universitair Medisch Centrum in Nederland. Deze bevatte vragen over de 35 kenmerken van effectieve docentprofessionalisering, gebaseerd op de kenmerken uit de reviews van Guskey (2003) en Steinert et al. (2006). Aan de medisch docenten werd gevraagd hoe belangrijk elk van deze kenmerken voor hen was als zij zouden deelnemen aan docentprofessionalisering.

Aan de hand van de resultaten van de 360 respondenten hebben we met behulp van een factoranalyse drie onderliggende factoren gevonden: (a) gefaciliteerde samenwerking in onderwijsverbetering, (b) individuele ontwikkeling als docent en (c) evidence-based onderwijs. In de eerste factor (de meest heterogene) worden items gecombineerd die allemaal te maken hebben met het ontwerp van docentprofessionalisering. De hoog scorende items in de tweede factor zijn gericht op de individuele ontwikkeling van een docent (bijv. het leren doceren via reflectie). In de derde factor tenslotte gaan de items over het gebruik van resultaten uit onderwijskundig onderzoek als basis voor het opzetten van docentprofessionalisering.

Hoewel bijna alle kenmerken relatief hoog werden gescoord door de docenten als geheel, zijn er duidelijke verschillen tussen de voorkeuren van individuele docenten te constateren. Nauwkeurige analyse leverde zeven kenmerken op met een relatief hoge gemiddelde score. Vier van deze kenmerken zijn gerelateerd aan de individuele ontwikkeling van docenten en drie ervan aan het ontwerp van docentprofessionalisering. Omdat deze zeven kenmerken niet konden worden gerelateerd aan achtergrondkenmerken van de docenten, zoals de hoeveelheid beschikbare tijd voor onderwijs of de hoeveelheid ervaring als docent, veronderstellen we er dat deze verschillen voortkomen uit individuele verschillen in voorkeur.

In hoofdstuk 3 wordt het tweede deel van de eerste studie beschreven. Hierin beantwoorden we de volgende onderzoeksvraag:

> *Welke kenmerken van effectieve docentprofessionalisering vinden opleiders het meest relevant bij het daadwerkelijk ontwerpen van programma's voor de professionalisering van medisch docenten?*

Om deze vraag te beantwoorden zijn semi-gestructureerde interviews gehouden met opleiders in alle acht medische faculteiten in Nederland. Alle geïnterviewden zijn experts in het ontwerpen en implementeren van docentprofessionalisering. De opleiders zijn gekozen, omdat zij door hun ervaring op het gebied van onderwijs en (het leren) van deelnemers aan docentprofessionalisering, praktijkkennis hebben ontwikkeld. Aan de opleiders werd gevraagd om uit de lijst met 35 kenmerken zoals vermeld in hoofdstuk

2, de meest relevante kenmerken van effectieve docentprofessionalisering te selecteren. Daarnaast werd hun gevraagd een 'veelbelovend voorbeeld' uit hun eigen praktijk te beschrijven. Deze vragen waren ontworpen om de praktijkkennis van de opleiders op verschillende manieren aan te spreken. In het eerste deel van het interview werden de opleiders op een expliciete manier bevraagd, terwijl ze in het tweede deel van het interview op een meer impliciete manier werden aangesproken via het beschrijven van het eigen praktijkvoorbeeld.

Uit deze interviews konden vijftien kenmerken worden afgeleid die de opleiders als meest relevant identificeerden voor het ontwerpen van docentprofessionalisering. De interviews konden tevens worden gebruikt om de vijftien kenmerken verder te specificeren voor de medische context.

Een samenvatting van de kenmerken, zoals deze zijn geselecteerd in de eerste studie is weergegeven in Figuur A. Zowel de vijftien kenmerken die door de opleiders als 'meest relevant' worden gezien als de zeven kenmerken, die door de docenten zijn gekozen als 'meest aansprekend' zijn hierin opgenomen. Omdat er veel overlap was tussen de geselecteerde kenmerken van beide groepen, leidde dit tot een uiteindelijke lijst van zestien kenmerken van effectieve docentprofessionalisering.

TWEEDE STUDIE

In de tweede studie onderzochten we of de zestien kenmerken uit de eerste studie gebruikt konden worden als een analysekader voor het bestuderen en verbeteren van een bestaand docentprofessionaliseringsprogramma. In hoofdstuk 4 beantwoorden we daarom de volgende onderzoeksvragen:

> *Kunnen kenmerken van effectieve docentprofessionalisering worden gebruikt om te begrijpen waarom een specifieke korte cursus zo succesvol is? Wat rapporteren deelnemers geleerd te hebben van een aanvullende cursus, die voldoet aan alle geselecteerde kenmerken van effectieve docentprofessionalisering?*

Voor het beantwoorden van deze vragen werd de succesvolle korte cursus 'Train de Trainers' (verder aangeduid als de 'Basis Cursus') geselecteerd. Deze cursus is gekozen omdat hij populair is in het medisch domein en over het algemeen zeer hoog scoort op tevredenheid bij deelnemers (Rubak et al., 2008). Uit ons onderzoek blijkt dat de meeste kenmerken (10 van de 16) al goed geïmplementeerd zijn in deze cursus, en dan met name de kenmerken die door de *docenten* waren geselecteerd als 'meest aansprekend' (Figuur A). De zes kenmerken die minder goed zijn geïmplementeerd blijken over het algemeen de kenmerken die door de *opleiders* waren geselecteerd als meest relevant voor het leren van docenten. Dit suggereert dat de cursus meer in lijn is met wat

aansprekend is voor docenten, dan met wat relevant wordt bevonden voor het leren van docenten volgens de opleiders.

We hebben vervolgens een aanvullende cursus ontworpen: de Plus Cursus. Deze is gebaseerd op alle zestien kenmerken van effectieve docentprofessionalisering. De Pluscursus bestaat uit verschillende sessies, die plaatsvonden in een tijdsbestek van 5 maanden: (a) een sessie over 360° feedback, (b) een sessie met video fragmenten, (c) een intervisiebijeenkomst en (d) een optioneel webseminar. De Pluscursus is vooral gericht op het verbeteren van kennis en vaardigheden van docenten op het gebied van feedback en op de bewustwording van deelnemers van hun rol als docent.

Uit een enquête, afgenomen aan het einde van de cursus, blijkt dat de deelnemers aan de Plus Cursus veranderingen rapporteerden in hun gedrag, in hun leren en in het leerklimaat op de werkvloer. Opvallend is echter dat, ondanks deze zelf gerapporteerde veranderingen, zij minder tevreden waren met deze cursus dan met de Basis Cursus.

In de deelstudie beschreven in hoofdstuk 5 tenslotte, onderzochten we het leerproces van de deelnemers in het aangepaste docentprofessionaliseringsprogramma. We richten ons hierbij op de volgende onderzoeksvragen:

> *Hoe kan het leren van docenten in het aangepaste docentprofessionaliseringsprogramma zichtbaar worden gemaakt? Welke leersequenties kunnen worden geïdentificeerd in de verschillende onderdelen van het programma?*

Om deze vragen te beantwoorden zijn diepte-interviews gehouden met vier deelnemers van de Basis- en Plus Cursus. Deze interviews richtten zich op de vraag wat de deelnemers hadden geleerd van de verschillende gevolgde sessies van het docentprofessionaliseringsprogramma: (a) de Basis Cursus, (b) de sessie over 360° feedback, (c) de sessie met videofragmenten van studenten, en (d) de intervisiebijeenkomst. Geïnterviewde docenten rapporteerden dat zij zich meer bewust waren geworden van hun rol als docent en dat zij nieuwe didactische kennis en vaardigheden hadden verkregen.

Voor de analyse van de data gebruikten we het model van Clarke and Hollingsworth (2002). Dit model maakt het leren van docenten zichtbaar. Het bevat vier domeinen, die onderling aan elkaar gerelateerd zijn. De vier domeinen die worden onderscheiden zijn: het Externe domein (bijv. een professionaliseringsprogramma), het Persoonlijke domein (bijv. kennis van een docent), het Praktijkdomein (bijv. het werk in de medische praktijk), en het Resultaatsdomein (bijv. studentresultaten). Op basis van de data uit de interviews hebben we diagrammen geconstrueerd die weergeven wat de docenten aangeven te hebben geleerd. Het Externe domein bleek het startpunt van alle

diagrammen, die aan de hand van onze data zijn gemaakt. Dit houdt in dat de docenten daadwerkelijk hadden geleerd van het professionaliseringsprogramma. Als de diagrammen complex zijn, betekent dit dat docenten veel hebben geleerd. Deze complexe diagrammen werden gevonden als studentenfeedback was opgenomen in de sessie (Resultaatsdomein), en in die sessies waar theorie en praktijk geïntegreerd waren (terugkoppeling naar het Praktijkdomein).

We concluderen hieruit dat de leeropbrengst van docentprofessionalisering bij docenten toe zal nemen door kenmerken toe te voegen die het leren van docenten relateren aan hun Praktijk-en Resultaatsdomein.

CONCLUSIES EN DISCUSSIE

De conclusies kunnen worden onderverdeeld in conclusies over de kenmerken van effectieve docentprofessionalisering en conclusies over het leren van docenten.

Kenmerken van effectieve docentprofessionalisering

- Er konden zestien kenmerken van docentprofessionalisering worden geïdentificeerd die gebruikt kunnen worden om een effectief programma in het medisch domein te ontwerpen (hoofdstuk 2 en 3).
- Het combineren van empirische kennis uit effectiviteitstudies (knowledge-for-practice) met praktijkkennis van opleiders en de eigen voorkeuren van docenten is een manier om deze kenmerken in te passen in een specifieke context, zoals het medisch domein (hoofdstuk 2 en 3).

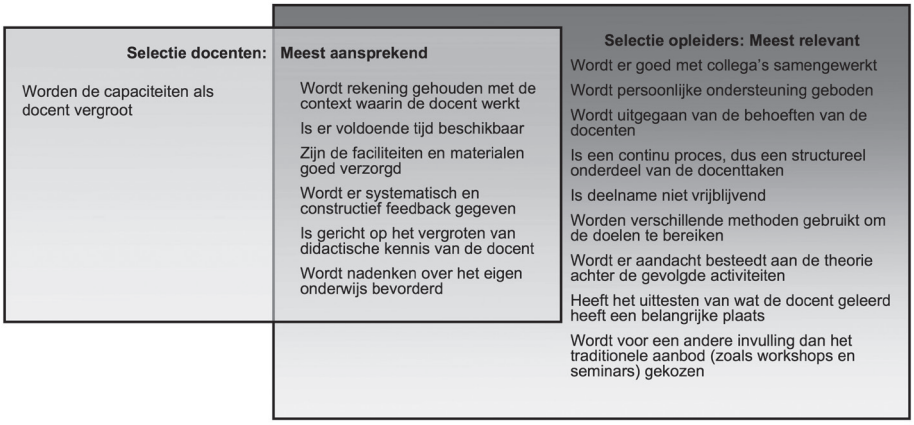
Het leren van docenten

- De populariteit van de 'Train de Trainer'-cursus bij medisch docenten kan worden toegeschreven aan het feit dat deze cursus veel kenmerken van effectieve docentprofessionalisering bevat die door medisch docenten in het algemeen als aansprekend worden aangeduid (hoofdstuk 4).
- Er lijkt een spanning te zijn bij het ontwerpen van docentprofessionalisering tussen wat het beste werkt (volgens onderzoeksresultaten) en wat door de docenten als aansprekend wordt gezien (afgeleid uit deelnamepercentages en tevredenheid) (hoofdstuk 4).
- Hoewel deelnemende docenten rapporteerden dat zij minder tevreden waren met de Plus Cursus dan met de Basis Cursus, rapporteerden zij tegelijk wel verandering in hun gedrag, hun leren en het leerklimaat op de werkvloer. De veranderingen betreffen met name de interactie met hun studenten (hoofdstuk 4).

- Het model van Clarke and Hollingsworth (2002) is een behulpzaam referentiekader om leerprocessen zichtbaar te maken, die geïnitieerd zijn door docentprofessionalisering in het medisch onderwijs (hoofdstuk 5).
- De impact van docentprofessionalisering op het leren van docenten kan mogelijk worden verbeterd door kenmerken toe te voegen die het leren van de docent relateert aan het Praktijkdomein en het Resultaatsdomein (hoofdstuk 5).

Het combineren van praktijkkennis van opleiders en opvattingen van docenten aan de ene kant en bestaande wetenschappelijke kennis over effectieve kenmerken van docentprofessionalisering aan de andere kant beschouwen we als een van de sterke punten van dit onderzoek. Een minder sterk punt zijn de kleine aantallen in een aantal van de arbeidsintensieve deelstudies. Dit bemoeilijkt de generalisatie van de onderzoeksgegevens.

In hoofdstuk 6 worden verschillende aanbevelingen gedaan over hoe bestaande programma's voor docentprofessionalisering in het medisch onderwijs kunnen worden aangepast zodat zij meer in lijn zijn met zowel de wetenschappelijke kennis over effectieve docentprofessionalisering als met de voorkeuren en opvattingen van docenten en opleiders. Aangeraden wordt om in de toekomst een longitudinaal onderzoek op te zetten, waarin ook de docent wordt geobserveerd (gedrag) en waarin tevens de studentresultaten worden betrokken. Hierdoor zou het lange termijn effect van de interventie nog beter inzichtelijk worden gemaakt.



Figuur A. Overzicht van de kenmerken, die zijn geselecteerd door de docenten en de opleiders

Appendices

APPENDIX A. ITEMS OF THE QUESTIONNAIRE (CHAPTER 1)

Items (in Dutch)	Items (in English)	Original characteristics
Ik vind belangrijk aan docentprofessionalisering dat:	**In faculty development it is important for me that:**[1]	
Uittesten van wat ik geleerd heb een belangrijke plaats heeft	1. Practicing what I have learned has a prominent position	Use of experiential learning (S)
Systematisch en constructief feedback wordt gegeven	2. Systematic and constructive feedback is provided	Provision of Feedback (S)
Goed met collega's wordt samengewerkt	3. Collaboration with colleagues is adequate	Effective peer and colleague relations (S)
Die goed is doordacht op basis van de theorie over leren en doceren	4. It is well designed, following the principles of teaching and learning	Well designed interventions following the principles of teaching and learning (S)
Verschillende methoden worden gebruikt om de doelen te bereiken	5. Multiple methods are used to achieve the objectives	Use of multiple instructional methods to achieve objective (S)
Die rekening houdt met de context waarin ik werk	6. It takes the context in which I work into account	Role of context (S)
Deelname niet vrijblijvend is	7. Participation is compulsory	Nature of participation (S)
Die over een langere periode is gespreid	8. It is scheduled over an extended period	Value of extended programs (S)

Voor een andere invulling dan het traditionele aanbod (zoals workshops en seminars) wordt gekozen	9. It uses alternative practices, other than traditional methods such as workshops and seminars	Use of alternative practices (S)
Mijn vakinhoudelijke kennis over het onderwerp van mijn onderwijs wordt vergroot	10. It enhances my content knowledge of the subject of teaching	Enhances teachers' content knowledge (G)
Die gericht is op het vergroten van mijn didactische kennis	11. It enhances my pedagogical knowledge	Enhances teachers' pedagogical knowledge (G)
Er voldoende tijd voor beschikbaar is	12. Sufficient time is provided	Provides sufficient time (G)
De faciliteiten en materialen goed zijn verzorgd	13. Facilities and materials (resources) are well taken care of	Provides sufficient resources (other than time) (G)
Een goede relatie tussen collega's wordt bevorderd	14. It promotes collegiality	Promotes collegiality (G)
Samenwerking tussen deelnemers wordt gestimuleerd	15. It promotes collaboration between participants **(deleted)**	Promotes collaboration (G)
De effecten ervan worden geëvalueerd	16. It includes an evaluation of effects	Includes procedures for evaluation (G)
Die past binnen onderwijsvernieuwingen zoals die op LUMC worden doorgevoerd	17. It aligns with reform initiatives of the organization	Aligns with other reform initiatives (G)
Het aangeboden onderwijs als goed voorbeeld kan dienen voor mijn eigen onderwijs	18. It models high-quality instruction which will benefit my own practices	Models High-quality instruction (G)
Die plaatsvindt op het LUMC	19. Is site-based	Is school or site-based (G)

Mijn leiderschapscapaciteiten op het gebied van onderwijs worden vergroot	20. It enhances my leadership capacities in education	Builds on leadership capacity (G)
Wordt uitgegaan van de behoeften van mij en mijn collega's	21. It is based on my own and my colleagues' needs	Based on Teachers' identified needs (G)
Een analyse van de behaalde resultaten van mijn studenten uitgangspunt is	22. It is driven by the analysis about students' learning	Driven by analysis of student learning data (G)
Mijn capaciteiten als docent worden vergroot	23. it improves my competences as a teacher	Focuses on individual improvement (G)
Die de onderwijsorganisatie op het LUMC verbetert	24. It aims at the improvement of the organization	Focuses on organizational improvement (G)
Er een vorm van follow-up is na afronding	25. It includes follow up after completion	Includes follow up (G)
Persoonlijke ondersteuning wordt geboden	26. It includes personal support	Includes support (G)
Het een continu proces is, dus een structureel onderdeel van mijn docenttaken	27. It is ongoing, hence a structural part of my work as a teacher	Is ongoing (G)
Mijn dagelijks werk het uitgangspunt vormt	28. It is job-embedded **(deleted)**	Is job-embedded (G)
Geschikt is voor een groep met uiteenlopende ervaring en expertise	29. It accommodates diversity of experience and expertise	Helps accommodate diversity (G)
Uit wordt gegaan van gelijkwaardigheid van de deelnemers	30. It promotes the equality of participants	Promote equity (G)

Dat het gebaseerd is op de nieuwste inzichten in onderwijsonderzoek	31. It is based on the best available research evidence in educational research	Based on best available research evidence (G)
De activiteiten afwisselend van vorm zijn	32. It takes a variety of forms	Takes a variety of forms (G)
Er aandacht wordt besteed aan de theorie achter de gevolgde activiteiten	33. It provides opportunities for theoretical understanding of the activities	Provides opportunities for theoretical understanding (G)
Die is opgezet op basis van ideeën over effectieve manieren van doceren en leren	34. It is driven by an image of effective teaching and learning **(deleted)**	Driven by an image of effective teaching and learning (G)
Die aansluit bij de onderwijseisen die op dit moment aan docenten worden gesteld	35. It accounts for current educational demands on the teacher	Provides for different phases of change (G)
Mijn onderzoekende houding wordt bevorderd	36. It promotes my scientific inquisitive attitude	Promotes continuous inquiry (G)
Nadenken over mijn eigen onderwijs wordt bevorderd	37. It promotes reflection about my teaching	Promotes reflection (G)
Ik inzicht krijg in de achtergronden en belangen van studenten	38. I gain insight into the background and interests of my students	Involves families and other stakeholders (G)

Note:

S: derived from Steinert et al. (2006), G: derived from Guskey (2003)

The first 9 items have been from Steinert et al. (2006), page 519 (5 key factors) and 520 (4 factors worthy of further exploration). The slightly adapted formulation of characteristic 1-4 was extracted from the abstract on page 497 of the review.

The other items (10-38) were derived from Guskey (2003). We split the items that contained the word “and” into two separate characteristics. This was done for the nos. 1, 2, 3, 11, 12, 13, 14 and 20 in the original article by Guskey. The numbers 18 and 21 (original article) were not split, as this would not have resulted in two separate characteristics.

Items 35 and 38 (nos.19 and 21 in the original article) have been adapted to the medical context. Three items in this list overlapped with others and were therefore deleted: nos. 15 (overlaps with items 14 and 3), 28 (overlaps with 6) and 34 (overlaps with 4).

APPENDIX B: INTERNET QUESTIONNAIRE (IN DUTCH) (CHAPTER 2)

Voor u ligt de vragenlijst Docentprofessionalisering op het LUMC. Deze vragenlijst is gemaakt in het kader van het promotieonderzoek van M.J. Leliveld in samenwerking met J. Bolk.

De vragenlijst is gebaseerd op kenmerken van effectieve professionalisering, zoals deze in de literatuur wordt gevonden. De resultaten van dit onderzoek zullen worden gebruikt voor het ontwikkelen van een adequaat aanbod van docentprofessionaliseringsactiviteiten.

Wij zouden graag van u willen weten in hoeverre onderwijs een rol speelt in uw werkzaamheden en welke professionaliseringsbehoeften u heeft op dit gebied. Voor de bruikbaarheid van het onderzoek is uw medewerking belangrijk. De vragenlijst invullen kost u **ongeveer 8 minuten**. Uw gegevens worden vertrouwelijk behandeld.
Alvast bedankt voor uw medewerking.

Algemeen

Man/Vrouw

☐ Man ☐ Vrouw

Werkzaam in Divisie

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Werkzaam als

Op welke afdeling werkt u?

Werkzaam sinds (jaar)

Hoeveel van uw tijd **besteedt u** ongeveer aan de volgende taken?
(samen 100%)

- ☐ Wetenschappelijk onderzoek
- ☐ Onderwijs
- ☐ Patientenzorg
- ☐ Management
- ☐ Anders, namelijk -> -> ->

Aan welke taak zou u het meeste tijd willen besteden? [?]

- ☐ Wetenschappelijk onderzoek
- ☐ Onderwijs
- ☐ Patientenzorg
- ☐ Management
- ☐ Anders, namelijk

Heeft u onderwijstaken?

- ☐ Ja
- ☐ Nee (volgende bladzijde is einde vragenlijst)

Zo ja, welke onderwijsfuncties vervult u? (Meerdere antwoorden mogelijk)

- ☐ Stagebegeleider
- ☐ Practicumbegeleider
- ☐ Werkgroepdocent
- ☐ Klinische vaardigheden docent
- ☐ Hoorcollegedocent
- ☐ Responsiecollegedocent
- ☐ Blok- of lijncoordinator
- ☐ Co-assistentbegeleider
- ☐ Jaarcoordinator
- ☐ Opleider van co-assistenten
- ☐ Opleider van arts-assistenten
- ☐ Lid van een opleidingscommissie (OPC), of uitvoerend orgaan (UO)
- ☐ Voorzitter OPC of UO
- ☐ Anders, namelijk

Zou u deel willen nemen aan docentprofessionalisering in het onderwijs?

- ☐ Ja
- ☐ Misschien
- ☐ Nee, omdat

Als men nee heeft ingevuld bij onderwijstaken, kom je op deze pagina

Bent u op de hoogte van het feit dat er een Basiskwalificatie Onderwijs komt?

- ☐ Ja
- ☐ Nee

Vindt u het een goede ontwikkeling dat iedere docent een Basiskwalificatie Onderwijs moet halen?

- ☐ Ja
- ☐ Nee
- ☐ Misschien

Waarom vindt u dit? (Zie vraag hierboven)

Einde van de Vragenlijst, bedankt voor uw medewerking

Universiteit Leiden

Heeft u verder nog vragen of opmerkingen?

End of Form

In hoeveel blokken bent u betrokken bij het onderwijs?

- ☐ Een
- ☐ Twee
- ☐ Drie
- ☐ Meer dan drie
- ☐ Anders, namelijk

Kunt u kort beschrijven wat uw belangrijkste onderwijstaken zijn?

Hoeveel jaren ervaring heeft u met het verzorgen van onderwijs?

☐ Minder dan 1 jaar ☐ 1-5 jaar ☐ 5-10 jaar ☐ 10-15 jaar ☐ Meer dan 15 jaar

In hoevere beschouwt u zichzelf als geroutineerd in het verzorgen van onderwijs?

☐ Helemaal niet geroutineerd ☐ Niet geroutineerd ☐ Redelijk geroutineerd ☐ Erg geroutineerd ☐ Heel erg geroutineerd

Heeft u contact met collega's over onderwijszaken?

☐ Nee ☐ Eens per jaar ☐ Eens per maand ☐ Eens per week ☐ Dagelijks

Zo ja, met wie? (Meerdere antwoorden mogelijk)

- ☐ Blokcoordinator
- ☐ Jaarcoordinator
- ☐ Collega's, die hetzelfde blok geven
- ☐ Collega's, die een ander blok geven
- ☐ Leden Onderwijscommissie
- ☐ Leden Uitvoerend Orgaan
- ☐ DOO (vroegere DOS)
- ☐ Anders, namelijk

Persoonlijke ervaringen docentprofessionalisering

Heeft u eerder aan een vorm van docentprofessionalisering op het gebied van medisch onderwijs deelgenomen?

- ☐ Ja
- ☐ Nee

Aan welke vormen van docentprofessionalisering heeft u deelgenomen?
(bijvoorbeeld ICLON cursus, Train-the Trainer, Onderwijsconferentie of Coachingstraject)
En hoeveel uur besteedde u hier (ongeveer) aan?

	Naam activiteit	Uren
Activiteit 1		
Activiteit 2		
Activiteit 3		
Activiteit 4		
Activiteit 5		

Zo ja, wanneer heeft u voor het laatst een activiteit ondernomen op het gebied van docentprofessionalisering?

- ☐ Dit jaar
- ☐ Vorig jaar
- ☐ Meer dan 2 jaar geleden

Hoeveel uren zou u per jaar **willen** besteden aan uw verdere professionalisering als docent?

Hoeveel uren zou u per jaar **kunnen** besteden aan uw verdere professionalisering als docent?

Stel: u heeft u opgegeven voor docentprofessionalisering van 40 uur, hoe zouden deze uren volgens u het beste kunnen worden verdeeld?

- ☐ Verspreid over een week
- ☐ Verspreid over een maand
- ☐ Verspreid over een half jaar
- ☐ Verspreid over een jaar

Rangschik de volgende scenario's voor docentprofessionaliseringsactiviteiten op volgorde van voorkeur. (1=meeste voorkeur, 5=minste voorkeur)
Het traject bestaat uit

- ☐ Didactische scholing met hierin een aantal verplichte en te kiezen trainingen en workshops
- ☐ Het observeren en bespreken van uitgevoerde onderwijsactiviteiten
- ☐ Het ontwikkelen van verbeterde onderwijsmaterialen
- ☐ Op een onderzoeksmatige manier een onderwerp uit uw onderwijs analyseren en bespreken met collega's en onderwijskundige
- ☐ Het zelfstandig bepalen van doelen, waarin u zelf actie onderneemt om deze doelen te halen

Waarin zou u zich als docent verder in willen professionaliseren? (Meerdere antwoorden mogelijk)

- ☐ Geven van hoorcolleges
- ☐ Motiveren
- ☐ Toetsingsinstrumenten maken
- ☐ Structuren onderwijs
- ☐ Communiceren in het Engels
- ☐ Gebruiken van verschillende onderwijsvormen
- ☐ Gebruiken Onderwijsondersteunende ICT vaardigheden
- ☐ Begeleiden co-assistenten en/of arts-assistenten
- ☐ Begeleiden van werkgroepen
- ☐ Onderwijsbeleid ontwikkelen
- ☐ Ontwikkelen van onderwijsmaterialen
- ☐ Anders, namelijk

Page 3 / Page 4

Belangrijke kenmerken van Docentprofessionalisering

Als u meedoet aan docentprofessionalisering. Welke kenmerken zijn dan belangrijk voor u?

Ik vind belangrijk aan docentprofessionalisering dat:

	Helemaal niet belangrijk	Niet belangrijk	Neutraal	Belangrijk	Heel belangrijk
uittesten van wat ik geleerd heb een belangrijke plaats heeft	☐	☐	☐	☐	☐
systematisch en constructief feedback wordt gegeven	☐	☐	☐	☐	☐
goed met collega's wordt samengewerkt	☐	☐	☐	☐	☐
die goed is doordacht op basis van de theorie over leren en doceren	☐	☐	☐	☐	☐
verschillende methoden worden gebruikt om de doelen te bereiken	☐	☐	☐	☐	☐
die rekening houdt met de context waarin ik werk	☐	☐	☐	☐	☐
deelname vrijblijvend is	☐	☐	☐	☐	☐
die over een langere periode is gespreid	☐	☐	☐	☐	☐
voor een andere invulling dan het traditionele aanbod (zoals workshops en seminars) wordt gekozen	☐	☐	☐	☐	☐
mijn vakinhoudelijke kennis over het onderwerp van mijn onderwijs wordt vergroot	☐	☐	☐	☐	☐
die gericht is op het vergroten van mijn didactische kennis	☐	☐	☐	☐	☐
er voldoende tijd voor beschikbaar is	☐	☐	☐	☐	☐
de faciliteiten en materialen goed zijn verzorgd	☐	☐	☐	☐	☐
een goede relatie tussen collega's wordt bevorderd	☐	☐	☐	☐	☐
samenwerking tussen deelnemers wordt gestimuleerd	☐	☐	☐	☐	☐
de effecten ervan worden geëvalueerd	☐	☐	☐	☐	☐
die past binnen onderwijsvernieuwingen zoals die op LUMC worden doorgevoerd	☐	☐	☐	☐	☐
het aangeboden onderwijs als goed voorbeeld kan dienen voor mijn eigen onderwijs	☐	☐	☐	☐	☐
die plaatsvindt op het LUMC	☐	☐	☐	☐	☐

Page 4 / Page 5
(vervolg vorige bladzijde)

Ik vind belangrijk aan docentprofessionalisering dat:

	Helemaal niet belangrijk	Niet belangrijk	Neutraal	Belangrijk	Heel belangrijk
mijn leiderschapscapaciteiten op het gebied van onderwijs worden vergroot	☐	☐	☐	☐	☐
wordt uitgegaan van de behoeften van mij en mijn collega's	☐	☐	☐	☐	☐
een analyse van de behaalde resultaten van mijn studenten uitgangspunt is	☐	☐	☐	☐	☐
mijn capaciteiten als docent worden vergroot	☐	☐	☐	☐	☐
die de onderwijsorganisatie op het LUMC verbetert	☐	☐	☐	☐	☐
er een vorm van follow-up is na afronding	☐	☐	☐	☐	☐
persoonlijke ondersteuning wordt geboden	☐	☐	☐	☐	☐
het een continu proces is, dus een structureel onderdeel van mijn docenttaken	☐	☐	☐	☐	☐
mijn dagelijks werk het uitgangspunt vormt	☐	☐	☐	☐	☐
geschikt is voor een groep met uiteenlopende ervaring en expertise	☐	☐	☐	☐	☐
uit wordt gegaan van gelijkwaardigheid van de deelnemers	☐	☐	☐	☐	☐
dat er gebaseerd is op de nieuwste inzichten in onderwijsonderzoek	☐	☐	☐	☐	☐
de activiteiten afwisselend van vorm zijn	☐	☐	☐	☐	☐
er aandacht wordt besteed aan de theorie achter de gevolgde activiteiten	☐	☐	☐	☐	☐
die is opgezet op basis van ideeën over effectieve manieren van doceren en leren	☐	☐	☐	☐	☐
die aansluit bij de onderwijseisen die op dit moment aan docenten worden gesteld	☐	☐	☐	☐	☐
mijn onderzoekende houding wordt bevorderd	☐	☐	☐	☐	☐
nadenken over mijn eigen onderwijs wordt bevorderd	☐	☐	☐	☐	☐
ik inzicht krijg in de achtergronden en belangen van studenten	☐	☐	☐	☐	☐

LUMC, Basiskwalificatie

Vindt u het een goede ontwikkeling dat iedere docent een basiskwalificatie Onderwijs moet halen?

- ☐ Ja
- ☐ Nee
- ☐ Misschien

Waarom vindt u dit? (zie vraag hierboven)

Hoe zou het LUMC docentprofessionalisering beter kunnen bevorden?

Einde van de Vragenlijst, bedankt voor uw medewerking

Als u op de hoogte wilt worden gehouden van de resultaten van dit onderzoek, dan kunt u hier uw emailadres invullen

Heeft u nog verdere opmerkingen en suggesties?

*.

APPENDIX C. INTERVIEW QUESTIONS FOR TEACHER EDUCATORS (CHAPTER 3)

Introductory remarks by interviewer

This interview is conducted as part of our research on instructional development in the medical context. Our purpose is to gain more insight into 'best practices' in medical education. The interview will help us to identify underlying processes that can lead to effective instructional development programs.

I will take notes and record the interview. The data we gather will be treated confidentially; I will use the data only for my research, and your anonymity is guaranteed. I will summarize this interview and send that summary to you for comments.

The interview is set up as follows:

- First, I will ask you about background characteristics.
- Next I will question you about medical instructional development in general.
- Finally, I will ask you about the best practice that you selected and the effect of this practice that you experienced.

The interview will take around 75 minutes. Do you have any questions before I start?

- *Date:*
- *Name:*
- *Starting time and duration:*

Background information

1. What is your gender and age?
2. What is your medical specialization? Could you briefly list your working experience?
3. Could you describe what type of activities you perform in your current job?
4. Could you briefly describe the most important tasks in your current job?
5. How much time do you spend on teaching? Research? Patient care? Other tasks?

Instructional development in general

This part of the interview is about instructional development in the medical context in general.

6. What does instructional development in your medical school look like?

7. What are typical characteristics of instructional development in your school, especially as compared to other medical schools?

8. Specific factors:

   A. If you designed an instructional development program in the medical context, what factors would you take into consideration?

   B. How would you design such a program such in a way that teachers actually learn from it? Think about content (e.g., what topics), context (who, when, where, why), and process (how).

9. Are there different groups of medical teachers? If so, which? Could you indicate differences in the design of instructional development programs to take these different groups (if any) into account?

Best practice - general

In this part of the interview I will ask you about the best practice you selected.

10. How are you involved in this best practice?

11. Why did you specifically select this practice?

12. Could you describe the best practice? Please provide background information about context, content, process and assignments.

13. In what ways is the teacher's everyday practice integrated in this best practice? How are the students involved? How did you take into account teachers' knowledge and skills ?

14. Why does this practice work so well? Please refer to content, context, and process.

15. Are there parts of the best practice that are not working well (yet)? Why do you think this is?

Best practice - characteristics of effective instructional development

This part of the interview is about the 35 characteristics e-mailed to you.

Note: The 35 characteristics of effective instructional development discussed in this thesis (see Chapter 2) were e-mailed to the teacher educators before the interview. These characteristics can also be found in Appendix B.

16. Could you indicate per characteristic if it applies to the selected best practice? Could you explain why you consider this characteristic applicable or not applicable?
17. Could you indicate what you consider to be the three most important, and the three least important characteristics? Please indicate per characteristic why you selected it.
18. Do you miss characteristics on the list? If so, which?

Best practice - effectivity

For your selected best practice, please indicate to what extend you agree with the following statements. Please also indicate why you selected this answer.

Note: this is a key part of the interview; if applicable, teacher educators were asked to elaborate or provide additional information.

19. The participants were enthusiastic.
20. The participants have obtained sufficient knowledge and skills.
21. The participants use what they have learned in their own lessons.
22. The instructional development program influences the students.

General information

23. Could you give me names of participants of your best practice that I might ask about their opinion on the effect of the instructional development activity?
24. Do you have additional information or suggestions about instructional development?

This is the end of the interview. I will process the data and send a summary report to you for comments.

Thank you very much for your co-operation. Can I contact you again if I have additional questions?

APPENDIX D. THE MINI-CLINICAL EVALUATION EXERCISE (CEX) (CHAPTER 4)

Evaluator:_____ Date: _____
Resident _____ Year: 1 -2-3
Patient Problem/DX_____
Setting: Ambulatory In-patient ED Other
Patient: Age: _____ Sex:_____ New Follow up
Complexity: Low Moderate High
Focus Data gathering Diagnosis Therapy Counselling

1. Medical Interviewing skills (Not observed)
   1 2 3 |4 5 6 |7 8 9
   UNSATISFACTORY SATISFACTORY SUPERIOR
2. Physical Examination Skills (Not observed)
   11 2 3 |4 5 6 |7 8 9
   UNSATISFACTORY SATISFACTORY SUPERIOR
3. Humanistic Qualities/Professionalism (Not observed)
   1 2 3 |4 5 6 |7 8 9
   UNSATISFACTORY SATISFACTORY SUPERIOR
4. Clinical Judgement (Not observed)
   1 2 3 |4 5 6 |7 8 9
   UNSATISFACTORY SATISFACTORY SUPERIOR
5. Counselling Skills (Not observed)
   1 2 3 |4 5 6 |7 8 9
   UNSATISFACTORY SATISFACTORY SUPERIOR
6. Organization/Efficiency (Not observed)
   1 2 3 |4 5 6 |7 8 9
   UNSATISFACTORY SATISFACTORY SUPERIOR
7. Overall Clinical Competence (Not observed)
   1 2 3 |4 5 6 |7 8 9
   UNSATISFACTORY SATISFACTORY SUPERIOR

Mini-CEX Time: Observing: _____min Providing feedback: _____ min
Evaluator Satisfaction with Mini-CEX
LOW 1 2 3 4 5 6 7 8 9 HIGH
Resident Satisfaction with Mini-CEX
LOW 1 2 3 4 5 6 7 8 9 HIGH

Comments: _____
Resident Signature Evaluator Signature

APPENDIX E. EVALUATION QUESTIONNAIRE (CHAPTER 4)

1. Name:
2. How many residents do you supervise?
3. I am a beginning/intermediate/experienced supervisor (indicate which of the three is applicable).

4. How often do you… (indicate with an X)	Daily	Twice a week	Weekly	Monthly	Half-Yearly	Yearly	Never
provide feedback to your students?	O	O	O	O	O	O	O
… receive feedback from your students?	O	O	O	O	O	O	O
… provide supervision to your students?	O	O	O	O	O	O	O
… receive supervision?	O	O	O	O	O	O	O
… inquire about student's prior knowledge and skills?	O	O	O	O	O	O	O
… formulate specific learning objectives?	O	O	O	O	O	O	O

5. To what extent do you agree with the following statements (in your department)?

	Totally disagree			Neutral			Totally agree
We know each other well in the department.	O	O	O	O	O	O	O
Potential learning situations are used in daily practice	O	O	O	O	O	O	O
Mistakes and near mistakes are used to learn from.	O	O	O	O	O	O	O
Students are asked about their learning needs	O	O	O	O	O	O	O
Student's learning needs are met.	O	O	O	O	O	O	O
The students find the feedback form relevant.	O	O	O	O	O	O	O
The teaching sessions are relevant for the students.	O	O	O	O	O	O	O
The quality of my feedback is good.	O	O	O	O	O	O	O

6. What do you think are important characteristics of providing constructive feedback?
7. Did you make changes in your own working practice in response to the Train the Trainers course? Yes/No
   Yes, namely…
   No, because…
8. Can I approach you if I need additional information for my research? Yes/No
9. Would you like to be informed about the results of this research? Yes/No
10. Do you have additional questions or remarks?

APPENDIX F. INTERVIEW QUESTIONS FOR PARTICIPANTS OF THE PLUS COURSE (CHAPTER 5)

Introductory remarks by interviewer

This interview is part of my research on instructional development in the medical context. The purpose is to collect information about the design of the Train the Trainer Plus course, and about what you have learned from the various sessions. I will use the results of this interview as a case study to research the way in which you have learned.

I will take notes and record the interview. Of course I will treat your data confidentially: I will use them only for my research and your anonymity is guaranteed. If you are interested I could send you the final results.

The interview is set up as follows:

- First, I will ask what you have learned from the instructional development program.
- Second, I will ask you about the design of the program.

The interview will last around 60 minutes. Do you have any questions before we start the interview?

- *Date:*
- *Respondent:*
- *Starting time and duration:*

Part 1. Learning points

purpose: study learning processes

I would like to focus on what you have learned during the course, and on what caused your learning. It is important for my research to find out which characteristics are important in teachers' learning in instructional development.

Could you please list your learning points from the Train the Trainer Plus program for me?

Note for the interviewer: Additional questions about those learning points should be asked in order to collect as much information as possible about:

- the four domains of the diagram (see diagram A);
- the relation between those domains;
- the identification of entry points and end points.

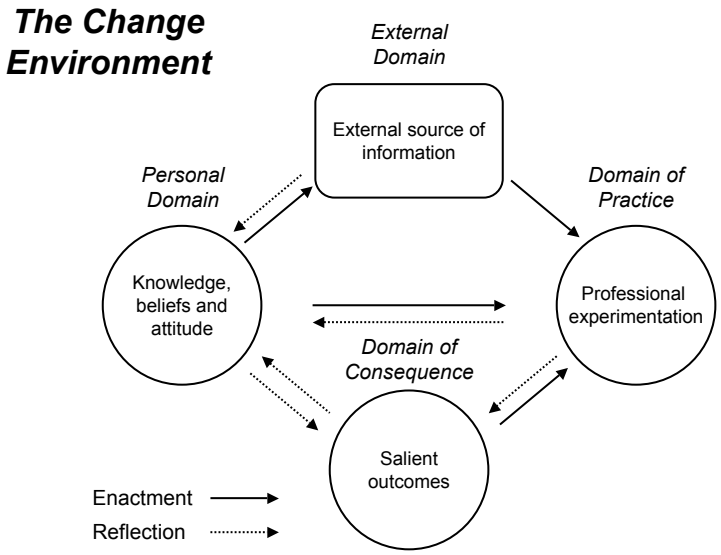


Diagram A. The four domains of Clarke & Hollingsworth (2002)

Examples of important possible questions (with the relevant domain in brackets):

- What did you learn (concerning feedback)? *(content)*
- What helped you to learn that? *(process)*
- What did you do with what you have learned in your working practice? *(content)*
- In what part of the course did you learn? *(context)*
- Which activities were important for this learning?(*process*)
- Why do you think you have learned? *(process)*
- Why do you think it was important to learn those specific learning points? *(context)*

Possible additional questions on the domains:

- **ED:** did the sessions contribute to your learning points?
- **ED:** Did the content/activities/context help you?
- **ED:** Did the assignments contribute to your learning?
- **DC:** What changes did you notice in your students/residents?
- **DP**: Do you think you have become a better supervisor/teacher?
- **DP**: Did you change your behavior?

- **PD:** Did you learn more?

Possible additional questions on reflection:

- How do you feel about what you have learned?
- What do you think are the outcomes of what you have learned?
- How are you going to implement what you have learned in the working practice, and why?
- What did you find important in the course**?** What did you consider unimportant?

Part 2. Design of the program

purpose: obtaining information on the Kirkpatrick (1994)levels

In this second part I will to ask you some short questions about the design of the program

- Did the Train the Trainer Plus program offer you sufficient opportunities for learning?
- Did the program provide you with sufficient possibilities to use in your working practice?
- Did the program provide you with sufficient knowledge and skills for teaching your students?
- Would you recommend this program to a colleague?
- What could be improved in the design of the course, and what is already well implemented?

This is the end of the interview. I will process the data and send a summary report to you for comments.

Thank you very much for your co-operation. Can I contact you again if I have additional questions?

Publications

Scientific publications

Stes, A., Min-Leliveld, M.J., Gijbels, D., & Van Petegem, P.(2010). The impact of instructional development in higher education: a state-of-the-art of the research. *Educational Research Review, 5*(1), 25-49.

Manuscripts submitted for publication

Min-Leliveld, M.J., Van Tartwijk, J., Verloop, N., & Bolk, J.H. (submitted). Characteristics of effective instructional development: teachers' preferences.

Min-Leliveld, M.J., Van Tartwijk, J., Verloop, N., & Bolk, J.H. (submitted). Using teacher educators' practical knowledge to select characteristics of effective instructional development.

Min-Leliveld, M.J., Van Tartwijk, J., Verloop, N., & Bolk, J.H. (submitted). Characteristics of effective instructional development: a framework for analyzing and improving short courses.

Min-Leliveld, M.J., Van Tartwijk, J., Zwart, R.C, Verloop, N., & Bolk, J.H. (submitted). Medical teachers' learning visualized: their learning processes in an instructional development program.

Other publications

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Min-Leliveld, M.J. (2008, August). *A closer look at effective faculty development: what can we learn from best practices on faculty development?* Paper presented at the AMEE, an international association for medical education. Prague, Czech Republic.

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Leliveld, M.J., Van Tartwijk, J., Bolk, J., & Verloop, N. (2006, May). *Professionele ontwikkeling van docenten geneeskunde [Professional development of medical teachers].* Poster presented at the Onderwijs Research Dagen. Amsterdam, the Netherlands

Leliveld, M.J., Van Tartwijk, J., Bolk, J., & Verloop, N. (2006, November). *Professionele ontwikkeling van docenten geneeskunde: een literatuuronderzoek.* Poster session presented at the NVMO conference of the Netherlands Association for Medical Education. Egmond aan Zee, the Netherlands. .

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Molenaar, I., & Min-Leliveld, M.J. (2009, June). *Setting up faculty development and the use of teacher competencies to improve the quality of teaching, an interactive session.* Workshop at IAMSE conference of the International Association of the Medical Science Educators. Leiden, the Netherlands.

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Curriculum Vitae

Mariska Jetske Min-Leliveld was born in Ter Aar, the Netherlands, on January 17th 1975. She attended Oscar Romero secondary school in Hoorn, where she graduated in 1993. She took a Spanish language course in Spain and worked on a camping ground in France before starting her studies in Biology/ Environmental Science at the Vrije Universiteit (VU) Amsterdam, from 1994 to 1999. Her master's thesis addressed the heavy metal distribution in the edible crab *Scylla Serrata* and was carried out at the University of Soegyapranata in Semarang, Indonesia. In 2000-2001 she taught Biology, Integrated Science and ICT at Asankrangwa Senior Secondary School in Ghana. After her return to the Netherlands in 2002 she attended the Post-doctoral university teacher training program in Biology at the VU. For the research part of her first level teaching qualification she wrote a thesis on Science, Mathematics and ICT (SMICT) education in Senior Secondary Schools in Ghana. This was an assignment from the Centre for International Cooperation (CIS) at the VU Amsterdam, and she kept working for CIS as project officer and researcher until 2004. At the same time she was teaching Biology at the Jan Arentz secondary school (VMBO) in Alkmaar and Sint Michael College (HAVO/VWO) in Zaandam. From 2003-2005 she worked as a Biology teacher at the VASVU, the foundation year for international students at the VU.

In 2005 Mariska started her PhD project at ICLON, Leiden University Graduate School of Teaching, in collaboration with the Leiden University Medical Center (LUMC). Her research focused on instructional development in medical education, with the eventual aim to improve the understanding of instructional development programs that are effective for medical teachers. She attended master classes on teacher education and methodology courses and presented her research on several national and international conferences. Additionally she was chairman of the NVMO promovendi netwerk: a network for PhD-students of the Netherlands Association for Medical Education.

Currenly she is chairman of GroenLinks in the local municipal assembly of Amsterdam-Noord and she is also working as a teacher educator at the ILO (interfacultaire lerarenopleiding) of the University of Amsterdam (UvA).

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Mariska Min-Leliveld
Mei 2011

LEIDEN UNIVERSITY GRADUATE SCHOOL OF TEACHING

ICLON PhD dissertation series

Hoeflaak, A. (1994). *Decoderen en interpreteren: een onderzoek naar het gebruik van strategieën bij het beluisteren van Franse nieuwsteksten.*

Verhoeven, P. (1997). *Tekstbegrip in het onderwijs klassieke talen.*

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Oonk, W. (2009). *Theory-enriched practical knowledge in mathematics teacher education.*

Visser-Wijnveen, G.J. (2009). *The research-teaching nexus in the humanities: Variations among academics.*

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Kessels, C.C. (2010). *The influence of induction programs on beginning teachers' well-being and professional development.*

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