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

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## 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.
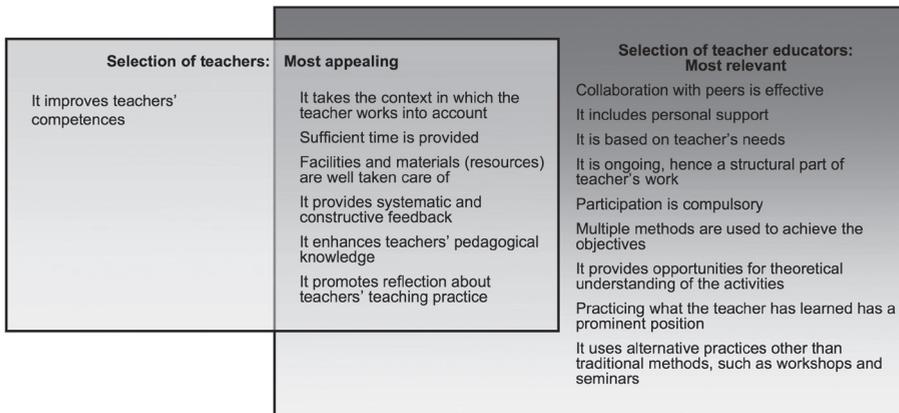


| Selection of teachers: | Most appealing | Selection of teacher educators: Most relevant |
|---|---|---|
| It improves teachers' competences | It takes the context in which the teacher works into account | Collaboration with peers is effective |
| | Sufficient time is provided | It includes personal support |
| | Facilities and materials (resources) are well taken care of | It is based on teacher's needs |
| | It provides systematic and constructive feedback | It is ongoing, hence a structural part of teacher's work |
| | It enhances teachers' pedagogical knowledge | Participation is compulsory |
| | It promotes reflection about teachers' teaching practice | Multiple methods are used to achieve the objectives |
| | | It provides opportunities for theoretical understanding of the activities |
| | | Practicing what the teacher has learned has a prominent position |
| | | It uses alternative practices other than traditional methods, such as workshops and seminars |

*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:

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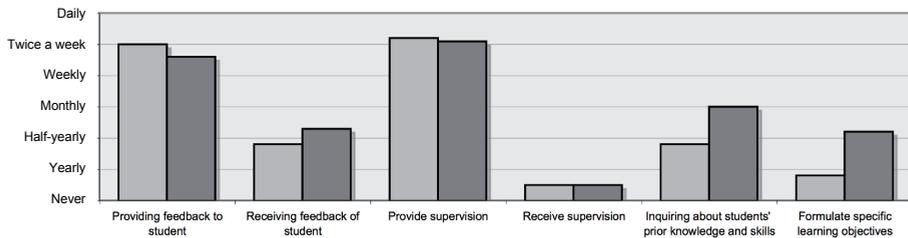
*Figure 4-2.* Frequencies for the Behavior level
Left: after Basic Course, right: after Plus Course

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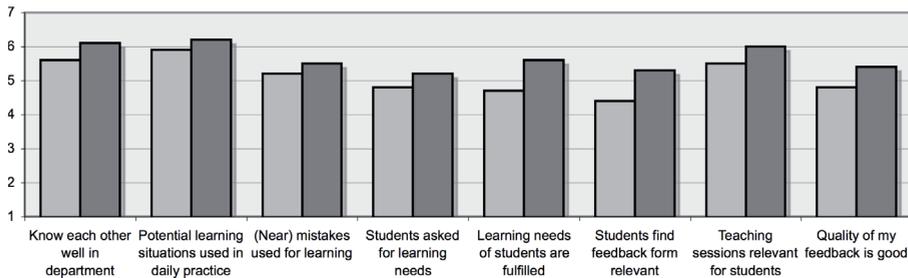
*Figure 4-3.* Scores for the Results level
Left: after Basic Course, right: after Plus Course

## 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.