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

Min-Leliveld, M.J.

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.

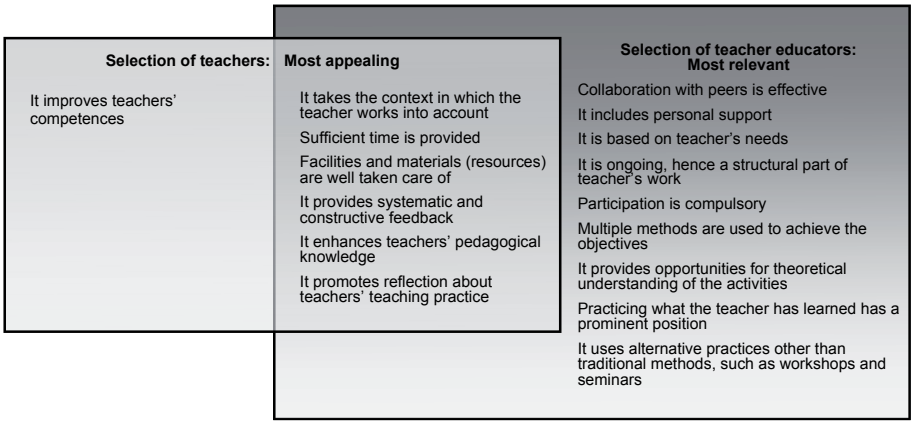

Figure A. Overview of characteristics selected by teachers and teacher educators