Role modeling in clinical practice: A whirlpool around master and apprentice in lifestyle interventions for obesity in general practice

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Learning from a role model: 
A cascade or whirlpool effect?

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Abstract

Background To amplify clinical, teaching and personal qualities and become a more competent role model in the master-apprentice relationship in workplace-based learning, CPD (continuing professional development) and FD (faculty development) courses have been designed in the expectation that a cascade effect will occur: the conveyance of information from course to clinical trainer to daily practice and/or to trainee by means of the role model function.

Purpose The aims of this study were to gain insight into the factors that encourage clinical trainers to incorporate what they have learned in CPD/FD into their role model function and factors that influence conveyance from master to apprentice.

Method We conducted a qualitative study using semi-structured interviews with GP trainers and their trainees.

Results Twenty-four GP trainers who completed a CPD course, and sixteen of their trainees participated. The analysis of their statements enabled the identification of factors that affect the amplification of the competences of the clinical trainer, his or her awareness of being a role model, applicability in training practice and conveyance of competences to the trainee.

Conclusions As a result of interaction between trainer, trainee and patient, the conveyance of competences from master to apprentice seems to be better represented by a whirlpool rather than a cascade, with the influential factors and interactions functioning as filters, causing a decline in the effectiveness of the CPD/FD. Using the filters as turning-points for improvements around the whirlpool could improve the effectiveness of CPD/FD courses.
Introduction

In clinical workplace learning, clinical trainers function not only as teachers, mentors and coaches, but also as role models for the trainees\cite{1,2} and thus as the master in a master-apprentice relationship.\cite{3} By using this master-apprentice relationship while working alongside a general practitioner (GP) trainer in his or her own practice, trainee GPs are expected to make the transition from a recently graduated student to a professional GP capable of providing high-quality patient care.\cite{4}

Previous studies have shown that integrating clinical, teaching and personal qualities is a prerequisite for positive role modeling.\cite{5,6} According to Wright et al., education could enhance the role model function of the GP for the trainee, optimizing the quality of learning in clinical practice.\cite{7,8}

To amplify these clinical, teaching and personal qualities and become a more competent master within the master-apprentice relationship, CPD (continuing professional development)\cite{9-15} and FD (faculty development)\cite{16-18} courses are designed in the expectation that a cascade effect will occur (Figure 1). This cascade effect represents how information is transferred from course to clinical trainer to daily practice and to trainee through role modeling.

![Figure 1. The Cascade effect](image-url)
Various courses using CPD combined with FD\textsuperscript{19-22} as the first step of the cascade have shown positive results when results are assessed using self-reported evaluations. Single CPD courses can also improve clinical qualities when the correct didactic techniques are used.\textsuperscript{6-12} In addition, systematic reviews\textsuperscript{13-15} summarizing studies on the effectiveness of single FD courses have shown improvements in the competencies of the clinical trainer as a teacher. The first step in the cascade thus seems to work effectively.

The second step of the cascade comprises applying the acquired competences as a role model and a master for the apprentice and, as part of that process, conveying the new knowledge acquired as a teacher to the trainee in the training practice. However, after single CPD courses, improvements in physician performance and patient outcomes were small.\textsuperscript{11-14} Evaluations of the effectiveness of single FD courses in terms of student ratings or examination scores are rare and show little or no effect.\textsuperscript{16,18} Consequently, Steinert and colleagues\textsuperscript{16} emphasize the conditions which must be met when developing FD for trainers to raise the awareness of their role as teachers. Wright\textsuperscript{8} extends this last item by highlighting the need of to make trainers aware of their role model function too.

Confirming the limited effectiveness of CPD or FD courses in the target population\textsuperscript{10,13,16-18} our teach-the-trainer course,\textsuperscript{23} which integrated knowledge and attitudes regarding treatment of obesity (CPD) and role modeling (FD), did result in an objective gain in the knowledge of the GP trainers, but no improvement in the attitudes or the role model behaviors of the trainers as assessed by the trainees, and no improvement either in the knowledge or the attitude of the trainees, the third step of the cascade. These limited findings can be explained by the fact that they were evaluated using formal tests among trainers and trainees, and by measuring the role model behavior of trainers through trainees rather than relying on – possibly overestimated – self-evaluations by the trainers.\textsuperscript{21,24}

These findings demonstrate that increased competences does not cascade downwards to reach trainees and clinical practice. Improving our understanding of the factors that influence this process could help to increase the effectiveness of CPD/FD courses.
The aims of this study were therefore the following:
• to understand the factors that affect the extent to which clinical trainers incorporate what they have learned during CPD/FD courses. (Step 1)
• to understand which factors influence the conveyance of new knowledge and behavior from master to apprentice after CPD/FD courses. (Step 2)
• to identify the extent to which there is concurrence between the statements of trainers and trainees about the effectiveness of CPD/FD for clinical training practice. (Step 3)

Methods

Context
In the Netherlands, GP trainers supervise, in their own practice, trainees in the first and third years of their three-year GP specialty training. The trainees also follow a central curriculum one day a week at one of eight institutes for GP specialty training. Their trainers attend eight training days a year for CPD/FD courses at the same training institute, in the expectation that these educational interventions will improve the quality of training for the trainees in clinical practice.

To study this cascade effect, we evaluated an interactive course on role modeling for obesity treatment, integrating knowledge of a medical subject with the GP's own attitude towards this subject and the importance of conveying knowledge and an appropriate attitude to their trainees. This training was attended by 184 trainers in 2012. We chose the subject of weight management because many GP's doubt the effectiveness of weight management and trainees therefore experience difficulty in becoming competent in this subject. New guidelines for general practice were recently issued and a new intervention became available, reinforcing the need for education on that subject. To enhance the implementation of this new intervention, we distributed booklets on the intervention for patients.

The CPD course consisted of two three-hour sessions of mixed didactic and interactive training sessions spaced three months apart (Figure 2), representing the usual duration of CPD courses for trainers, with a follow-up three months after the course. The effectiveness of the course was assessed by means of self-
evaluation of the trainers’ and trainees’ own attitudes and an objective examination of knowledge acquired by trainers and trainees, as well as an assessment of the trainers’ role model behavior by the trainees. An increase in the knowledge of the GP trainers was established, but no improvement in the role model behavior of the trainers was observed, nor was an improvement in the knowledge or attitude of the trainees observed.

In 2013, nine months after starting the CPD course (Figure 2), trainers attending a central curriculum day at the training institute of the University of Amsterdam were invited for a telephone interview at an appointed time. Their trainees were later also approached by telephone for an interview.

![Figure 2. Schematic representation of the assessment](image)

**Participants**

GP trainers who attended the CPD course and accepted our invitation participated in the study, along with their respective trainees. All the participants were informed that participation was voluntary, and that their interviews would be coded to prevent responses being traceable to individual participants. The GP trainers and trainees signed informed consent forms. Ethical approval for this study was obtained from the Ethical Review Board of the Dutch Association for Medical Education (NVMO).

**Design**

We conducted a qualitative study using semi-structured interviews with GP trainers and their trainees to explore the factors underlying CPD/FD implementation in the master-apprentice relationship. The questions for this semi-structured interview were designed on the basis of the results of previous studies.²³²⁵

To evaluate whether the course succeeded in amplifying the competences of the clinical trainers, participants were asked if they had gained knowledge, changed their attitude, were able to apply the competencies acquired in daily practice
and why (or why not), whether and which competences they had conveyed to their trainees and whether their trainees were able to apply these competencies in the training practice. Finally, they were asked to evaluate the content of the training sessions. The trainees of these trainers were asked whether the trainer had conveyed new competences and in which context, whether they had gained knowledge or changed their attitude, whether they were inspired by their trainer and to what extend they were able to use this new information when treating their patients.

Data collection and analysis
One researcher (NB) conducted the interviews with the clinical trainers and one research assistant (NJRL) conducted the interviews with the trainees by phone. This design was used so that the interviewer of the trainees would not be biased by the statements of the trainers and vice versa. All interviews were audio-recorded and transcribed verbatim. Two researchers (NB and HGAJL) analyzed the data independently using conventional content analysis.Using open coding we were able to subdivide the answers into the categories that emerged from the data. Consensus about the categories and subdivision of the answers was reached in three meetings.

Results
Twenty-four trainers participated, 14 males and 10 females, aged 39-63 years (mean 53.3 years). Sixteen trainees, 2 males and 14 females, aged 28-36 years (mean 31.4 years) participated. One trainee had two trainers and seven trainees failed to participate: three trainees failed to give informed consent in written form, so their answers were excluded, one trainee refused to participate and three trainees could not be reached because they had already graduated. The interviews lasted approximately 10-15 minutes. For the statements illustrating the results, see Table 1. The statements were organized into five categories emerging from the data.

1. Amplification
The factors affecting the amplification of the trainer’s competences relating to the training were the following: whether they personally considered the topic
appealing, a clear aim for the course, positive interaction with teacher and peers, and supportive educational materials. Trainers indicated that they had acquired new knowledge or refreshed old knowledge. Sometimes the subject of the course caused resistance, which had to be neutralized before the course could be effective. When the course was too detailed, the trainers lost perspective. Lack of enthusiasm on the part of the teacher was mentioned by several trainers as a reason they did not “take home” the delivered message. Trainers indicated that group dynamics can lead to beneficial discussions.

2. Awareness.
Trainers felt they became more aware of their own attitude and how to help their patients. They tried to make their trainee more aware of their role as a GP in caring for an overweight patient by being more active or enthusiastic themselves or by discussing the subject. Some trainers noticed their trainees having the same negative thoughts about weight management as they have.

3. Applicability
There were some recurring themes in the remarks made about the possibilities for applying the competences acquired in the training practice, relating to the practical applicability of the topic, attention for implementation and integration in daily work during the course. Some trainers who were inspired by the course were nevertheless unable to put the knowledge into practice because they experienced a lack of applicability or it was too much on top of their daily work and they could not fit it in. The trainers therefore asked for more attention how to integrate the content of the course into daily practice, because they could only use what they had learned if they were able to implement it immediately. They would also have liked more information on how to approach patients.

4. Conveyance
The conveyance from trainer to trainee is influenced by the commitment of the trainer, by the receptiveness of the trainee and whether it is on request of the trainee. In their first year of training, trainees are not always capable to incorporate complex knowledge already. The trainee must feel the need for it, otherwise they will not approach the topic. However, a trainee can also serve to inspire a trainer and vice versa; it helps the trainee if the trainer is inspiring, or even demanding.
5. Interaction

Trainer-trainee interaction, as well as trainer-patient or trainee-patient interaction, appears to influence the conveyance from trainer to trainee. Trainers were more willing to convey what they had learned if they considered the information to be important for patients’ health, if it formed part of the treatment of the patient or if the patient asked for it. They were even more willing when the trainee encountered a problem with a patient and discussed this problem with the trainer.

Table 1

Statements illustrating the results.

<table>
<thead>
<tr>
<th>Circle</th>
<th>Factors</th>
<th>Filter</th>
<th>Statements</th>
</tr>
</thead>
</table>
| Clinical   | Amplification    | Topic         | - I was already active in this topic, but the course has strengthened me to continue with this. It gave me the support I needed to continue with it. (Trainer 15)  
- Some trainers do not have any feeling with the topic, others say: it is a waste of time, people with obesity will stay obese. (Trainer 20)                                                                                                                                                                                                                       |
| Trainer    | Aim of CPD/FD    | - I found this to be a thorough course. The teacher explained to us why this topic and what the importance of this subject is, and what it means for your role as a GP (Trainer 22)  
- If 25% or 30% of people are obese, it does not matter to me. It did not inspire me, and then the way it was done, I thought: that is not the way I will learn anything, to be honest. (Trainer 7)                                                                 |                                                                                                                                                                                                                                                                                                                                 |
| Teacher    | - The teacher illustrated the resistance there is to discuss the topic using her own experience, that was funny, she used that very well. (Trainer 23)  
- During the first part of the course, maybe due to the teachers, I did not learn any new facts, but it did motivate me to give more attention to obese patients. And the second part was really dull; it did not motivate me at all. I am not sure whether it was caused by the teachers or the group, but the first part was much more motivating. (Trainer 2) |                                                                                                                                                                                                                                                                                                                                 |
| Peers      | - That has more to do with the teaching in general. Because it depends on the group you’re working with and whether you can motivate each other. I prefer to work in the same group each time so that you can get to know each other, that allows me to be more open. (Trainer 11) |                                                                                                                                                                                                                                                                                                                                 |
| Educational | The booklets for the patient, I found them really interesting, are at my fingertips, but I have not used them yet in caring for a patient. Still I can use them if I need them. (Trainer 16) |                                                                                                                                                                                                                                                                                                                                 |
| Awareness  | Attitude change  | - The trainee also notices that you are more actively focused on it. (Trainer 3)  
- Looking at it differently, it's brought it closer to the surface. Sometimes now it takes less time before the alarm bells start ringing. In any case, it's more in my thoughts and then at least you have the choice of doing something with the patient. That's a funny effect for me, I didn't think that would be the case if I'm honest. (Trainer 13) |                                                                                                                                                                                                                                                                                                                                 |
### Comparison between trainer and trainee responses

The responses also allowed a comparison of the answers given by the trainers and the trainees (see Table 2). This showed the (lack of) consistency between the self-reported implementation of the trainers in practice and the statements of the trainees; showing that the trainees were more likely to integrate the subject in daily patient care when the trainer had embedded teaching on the subject in care for the patient and when the trainer had changed his or her own practice performance.

**Table 1 continued**

<table>
<thead>
<tr>
<th>Circle</th>
<th>Factors</th>
<th>Filter</th>
<th>Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicability</td>
<td>Practical application</td>
<td>- Practical information, very useful and I also use it when I’m talking to people who are overweight. For example, what the effects are of certain eating habits. (Trainer 15)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Integration in daily work</td>
<td>- I intended, after the course, to become more active in my own practice, but still I had to overcome some barriers. I was enthusiastic, but the daily routine and workload of the practice prevents you from getting started. (Trainer 22)</td>
<td></td>
</tr>
</tbody>
</table>

| Trainee Conveyance | Receptiveness of trainee | - I certainly think that I can still learn a lot about this. But I think I just didn’t have enough of a need for it at that point… yes, it’s also that in the first year you go deeper into whatever you encounter at that moment in your practice, and if you don’t have much to do with it, then it gets pushed to one side again, but actually I do need it, I should certainly learn more about it but… (Trainee 17) |
| Request from trainee | - Both GP trainers noticed I was interested and when they completed the course…. it was a combination.” (Trainee 10) |
| Enthusiasm of trainer | - I talked to the trainee about how you motivate people etc. The trainee didn’t like the subject to start with, but he did warm to it I think. The implementation of an improvement plan is about to start. (Trainer 15) |
|              | - In terms of what was needed for the project and for myself, for me my trainer and all the guidelines there are were sufficient. (Trainee 15) |

| Patient Interaction | Importance for health patient | - It became clear to me in a painful manner how you can miss a stomach problem in someone who is obese. So that was certainly new knowledge. (Trainee 4) |
| Part of treatment | - Actually always in combination with the patients who you see… either it is obvious that the patient is overweight, or it has something to do with the complaints that the patient has, then we do discuss it. (Trainee 13) |
| Question from patient | - But there was a girl with obesity who kept coming back, so on the basis of that we talked about bariatric surgery. (Trainee 22) |
Table 2
Comparison of statements between trainers and trainees regarding the conveyance of knowledge (−) and attitude (=) after the CPD course

<table>
<thead>
<tr>
<th>No.*</th>
<th>Quotes from trainers</th>
<th>Quotes from their trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Positive</td>
</tr>
<tr>
<td>4</td>
<td>-Not in a formal way, not to transfer knowledge =More awareness and motivation</td>
<td>-As part of the treatment of a patient, I learned a new method of treatment =I developed another attitude, how to address the patient</td>
</tr>
<tr>
<td>5</td>
<td>-Discussed it and also the guideline =How to address the patient, small steps, major influence on health</td>
<td>-A few times when I was worried about a patient =nothing changed</td>
</tr>
<tr>
<td>10</td>
<td>-The trainee implemented the subject in a quality project for the practice =Another, easier, treatment, that is important for the patient and helps to convince the patient</td>
<td>-Discussed it as part of the quality project and the treatment of patients =Being more realistic about the results of the treatment helps to address the patient</td>
</tr>
<tr>
<td>12</td>
<td>-Discussed the subject briefly =Encouraged not to give up and try to find a way to address the patient</td>
<td>-As part of the treatment of a patient and how to address the patient =Nothing changed. But it is pleasant to discuss difficult problems with a colleague</td>
</tr>
<tr>
<td>13</td>
<td>-Discussed things with the trainee and handed out the course materials. =I am doing more with it and that is permanent, I think</td>
<td>-Discussed the things he learned in the CPD course and when it is a part of the treatment or reason for a patient’s complaints =In that way, I am more aware of it, even when the patient comes for another complaint</td>
</tr>
<tr>
<td>14</td>
<td>-Discussed some things</td>
<td>-Did not discuss the subject a lot</td>
</tr>
<tr>
<td>15</td>
<td>-Discussed the subject with my trainee and the trainee used it for a quality project =The CPD course gave me the confidence to continue in the way I did</td>
<td>-Discussed it a lot, as part of the quality project and the trainer handed me the materials of the CPD course =I pay more attention to the problem</td>
</tr>
<tr>
<td>17</td>
<td>-Handed out the course materials =It is easier and I am more careful in addressing the patient, and I am more aware of the problem for the patient</td>
<td>-Told briefly about the things of the course and handed the materials =I did not change, but I am more evaluating the pros and cons</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Negative</td>
</tr>
<tr>
<td>22</td>
<td>-Discussed it briefly, not in detail. More about the attitude of the trainee. The trainee had an interest in the subject the whole year. =I think it is a job for the practice nurse, I don’t like to address the patient on this subject, maybe I have to change that</td>
<td>-As part of the treatment of patients, also discussed some literature =Nothing changed, I was already interested in the subject</td>
</tr>
<tr>
<td>1</td>
<td>-No knowledge =it is an important topic</td>
<td>-Discussed it only with the practice nurse</td>
</tr>
<tr>
<td>6</td>
<td>-Not at all, no questions from the trainee on the subject</td>
<td>-The trainer did not discuss it =No, not much. We refer those patients and do not treat them often ourselves</td>
</tr>
</tbody>
</table>
Chapter 6

<table>
<thead>
<tr>
<th>N=8*</th>
<th>Quotes from trainers</th>
<th>Quotes from their trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>The only thing that I tried to motivate the trainee</td>
<td>Not so explicit.</td>
</tr>
<tr>
<td></td>
<td>I told the trainee to look into it if it was important for the treatment of a patient</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Did not discuss it</td>
<td>We did not discuss it, because I choose the subjects for our teaching sessions.</td>
</tr>
<tr>
<td></td>
<td>No, I do not act differently</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Have not discussed it yet</td>
<td>Did not discuss this already in my first year of training</td>
</tr>
<tr>
<td>19</td>
<td>Had already discussed it before the course</td>
<td>Can’t remember me discussing it</td>
</tr>
<tr>
<td></td>
<td>Trainee is already active on this point, we discussed it extensively</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Discussed it during a teaching session</td>
<td>Can’t remember anything concrete</td>
</tr>
<tr>
<td></td>
<td>It was already a point of interest and that did not change</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Don’t know</td>
<td>Not really, can’t remember</td>
</tr>
<tr>
<td></td>
<td>No, I was already very active</td>
<td></td>
</tr>
</tbody>
</table>

*Number of couple of the GP trainer with their GP trainee.

From cascade to whirlpool

When we began this study, we followed the current of the supposed cascade (Figure 1). However, the interaction of the trainer with the trainee, and of the trainer and the trainee with the patient seems to exert an adverse influence, thus the decline of professional competences cannot only be explained by a cascade effect. During our analysis it became clear that we had to design another figure to better represent the data: not a straight flow but a circular swirling movement like a whirlpool (Figure 3), with amplification, awareness, applicability, conveyance and interaction as important factors influencing this process.

Discussion

In this qualitative study we analyzed the presumed cascade effect of a train-the-trainer course designed to “amplify” the GP in his or her role as clinical trainer for the trainee in the clinical workplace. In fact, our analysis led to the development of another figure that better represents the data: a whirlpool (Figure 3).

The influences found in this study were partly consistent with the factors that are important for the implementation of CPD courses or FD courses in daily practice, which have been mentioned in previous studies. In addition, this study has explored the factors affecting the implementation of a combined CPD/FD
Learning from a role model

Figure 3. Factors influencing the conveyance from trainer to trainee in clinical training practice, displaying a whirlpool effect.

One might expect a cascade effect to occur if all the conditions are met. Although the self-evaluation for CPD/FD courses is positive (Step 1), the results are less impressive when the effectiveness of courses is assessed by the target population, i.e. the trainees (Step 2) and in clinical training practice (Step 3). On the way down, the cascade effect of CPD/FD courses on the professional competences of the trainer decline, possibly because the factors that influence each step of the cascade function as a filter, hindering the amplification of the competences of the trainer, conveyance to the trainee and applicability in patient care.
care. Additionally, the interaction of the trainer with the trainee, and of the trainer and the trainee with the patient seems to exert an adverse current, and thus the limited effectiveness observed cannot be explained solely by the failure of the cascade effect (Figure 1). Subsequently, the various factors and interaction that influences the conveyance can better be represented by a whirlpool (Figure 3). This is in line with the theoretical findings by O'Sullivan and Irby.

Visualizing the process as a whirlpool rather than a cascade creates an opportunity to influence the swirling circles from different turning-points at the same time, instead of at only one step in the cascade. Rubak and colleagues\textsuperscript{28} organized a mandatory joint FD course for all trainers and trainees, which had a positive effect on knowledge, teaching skills and the learning environment, also according to the scores of the trainees. This set-up means that the first filter, conveyance from trainer to trainee, is eliminated; it also positively influences the second filter, that of practical applicability, because the trainer and trainee in clinical training practice have the same understanding of the subject at the same time.\textsuperscript{28} The study of Rubak et al. covered only the first two steps of the cascade and did not reach the last step, which is that of care for the patient in daily practice.

Nevertheless, when the influential factors of amplification, awareness, applicability, conveyance and interaction, which currently function as filters, become turning-points for CPD courses integrated with a focus on FD competences, we might also expect improved effectiveness. Training trainers and trainees on the same topic will positively influence effectiveness, according to Rubak and colleagues. Choosing a topic that is perceived to be important for the health of patients will also reduce the resistance of the trainer and increase the receptiveness of the trainee. Together, this can create an optimal learning environment for the trainer in which CPD/FD competences, such as the awareness of being a role model for the trainee, are transferred and implemented in the training practice, thus improving the effectiveness of all three steps.

When we compared the statements of trainer-trainee couples, the trainers claimed to have covered the topic more often than the trainees. At the other hand, when trainers are active in implementing the topic, then trainees admitted to having experienced a positive change in their behavior, confirming the importance
of amplifying competences and a growing awareness of the role model function of the clinical trainer.

**Strengths and limitations**

In this study we analyzed the effectiveness of the cascade not only using self-evaluation by trainers, but also using evaluation among the target group, i.e. the trainees, and their implementation of competences in patient care. We processed the data using open coding, not using preset categories, in order to understand the underlying factors better. Because GP trainers participated voluntarily, the number of participants was limited and therefore there was a possibility of selection, even though the answers covered a full range, from very negative to very positive.

**Implications for future courses and research**

New CPD/FD courses for clinical trainers should be designed using the relevant factors identified in this study as turning-points. Developing and testing a new gold standard\textsuperscript{14} for evaluation will enable future research to combine and compare studies and reveal more factors that influence effectiveness.

**Conclusions**

Incorporating what clinical trainers learn during a CPD/FD course in their role model function for the trainee depends not only on influences on the amplification of their competences, on being aware of their own attitude and on applicability in the daily training practice, but it can also be affected by interaction with trainee and patient. Consequently, it seems more appropriate to visualize the conveyance from master to apprentice as a whirlpool rather than a cascade (Figures 1 and 3). This creates an opportunity for interventions at more than one turning-point around the swirling circles, in order to simultaneously improve the effectiveness of CPD/FD courses with regard to the role model behavior of the trainer and the conveyance to the trainee in clinical practice.


