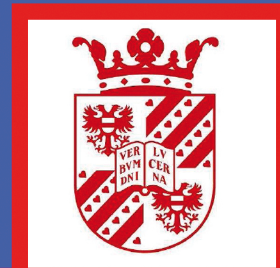
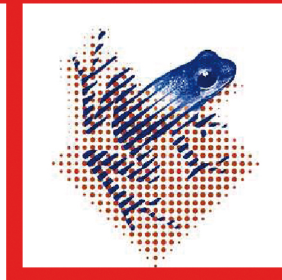
EFFECTIVE FEEDBACK IN MEDICAL ON-THE-JOB TRAINING

Annesophie E. Gruppen - Zantinge





UMCG, Wenckebach Institute
RUG, Faculty of Management and Organization,
specialization Human Resource Management

Groningen, October 2009

Studentenbureau UMCG

Universitair Medisch Centrum Groningen

Effective feedback in medical on-the-job training

Results of literature research & descriptive, explorative empirical research within the University Medical Centre Groningen

Groningen, 9 october 2008

Author	Annesophie E. Gruppen-Zantinge
Studentnumber	1542362
Master Thesis	Human Resource Management Faculty of Management and Organization RUG
Research Client	drs. E. Jippes Wenckebach Institute, UMCG
Supervisors	H. van Polen P. van der Meer Faculty of Management and Organization RUG
Supervisor UMCG	drs. E. Jippes Wenckebach Institute

ISBN 978-90-8827-060-4
NUR 807 Bedrijfskunde – Personeel en Organisatie
Trefw Feedback, medical education, on-the-job training, resident, supervisor

Omslag: Wenckebach Instituut, Universitair Medisch Centrum Groningen

© 2009 Studentenbureau UMCG Publicaties Groningen, Nederland.

Alle rechten voorbehouden. Niets uit deze uitgave mag worden verveelvoudigd, opgeslagen in een geautomatiseerd gegevensbestand, of openbaar gemaakt, in enige vorm of op enige wijze, hetzij elektronisch, mechanisch, door fotokopieën, opnamen, of enige andere manier, zonder voorafgaande toestemming van de uitgever.

Voor zover het maken van kopieën uit deze uitgave is toegestaan op grond van artikel 16B Auteurswet 1912 j° het Besluit van 20 juni 1974, St.b. 351, zoals gewijzigd in Besluit van 23 augustus 1985, St.b. 471 en artikel 17 Auteurswet 1912, dient men de daarvoor wettelijk verschuldigde vergoedingen te voldoen aan de Stichting Reprorecht. Voor het overnemen van gedeelte(n) uit deze uitgave in bloemlezingen, readers en andere compilatiewerken (artikel 16 Auteurswet 1912) dient men zich tot de uitgever te wenden.

Preface

I would like to thank everyone who helped me during my stay at the hospital. In particular I want to thank my supervisors Hans van Polen and Peter van der Meer from the University of Groningen who provided me with very useful ideas about the content and the structure of my thesis. And I want to thank my supervisor Erik Jippes from the Wenckebach Institute who has given me valuable advises and invested a lot of his time to help me to finalize my work. At last I want to thank me colleagues of the Wenckebach Institute who provided me with useful material and shared their knowledge about the matter.

Contents

ABSTRACT 1

1 INTRODUCTION 3

2 THEORY 5

2.1 Effective feedback 5
2.2 Operational definition of feedback 5
2.3 Structural considerations 8
- 2.3.1 Scheduled appointment 8
- 2.3.2 Mutual initiative 8
- 2.3.3 Linked to goals 8
- 2.3.4 Appropriate climate/ setting 9

2.4 Content considerations 9
- 2.4.1 Specific 9
- 2.4.2 Focus on changeable behaviour 9
- 2.4.3 Limited 9
- 2.4.4 Based on first hand observations 9
- 2.4.5 Non-judgmental language 10
- 2.4.6 Timely 10
- 2.5 Format considerations 10
- 2.5.1 (First) learner's self-critique 10
- 2.5.2 First good points 10
- 2.5.3 Instructions for improvement (follow-up plan) 11
- 2.5.4 Reciprocate 11
- 2.5.5 Interpretation check 11

3 RESEARCH METHODS 13

3.1 Research design 13
3.2 Respondents 13
- 3.2.1 Composition 14

3.3 Data collection method 14
3.4 Data analysis 14

4 RESULTS 17

4.1 Definition (effective) feedback 17
- 4.1.1 Residents about feedback 17
- 4.1.2 Supervisors about feedback 17

4.2 Perceptions of effective feedback 18
4.3 Structural considerations 18

4.3.1 Scheduled appointment....18
4.3.2 Mutual initiative....19
4.3.3 Link to goals....19
4.3.4 Appropriate climate/ setting....19
4.3.5 Personal relationship....20
4.4 Content considerations....20
4.4.1 Specific....20
4.4.2 Non-judgemental language....21
4.4.3 Timely....21
4.5 Format considerations....21
4.5.1 (First) learner's self-critique....21
4.5.2 (First) good points....21
4.5.3 Instructions for improvement....22
4.5.4 Suggestions for improvement....22
4.5.5 Reciprocate....22
4.5.6 Asking questions....22
5 DISCUSSION....25
5.1 Main findings....25
5.1.1 Structural considerations....26
5.1.2 Content considerations....26
5.1.3 Format considerations....27
5.2 Strengths and limitations....27
5.2.1 Strengths....27
5.2.2 Limitations....28
5.3 Conclusions and suggestions for further research....28
5.4 Practical implications....30
6 REFERENCES....33
Appendix....37

Abstract

Effective feedback in medical on-the-job training

This study is part of the process to give the Wenckebach Institute more insight in the effectiveness of feedback between supervisors and residents within the University Medical Centre Groningen (UMCG). To get this insight, a clear, operational definition of effective feedback is needed. That is why the aim of this study is to investigate the modalities of effective feedback between residents and supervisors in the UMCG. To achieve this aim, first the (operational) definition of effective feedback in medical on-the-job training (OJT) was determined of scientific literature. Numerous authors in medical education have proposed several modalities of effective feedback. These modalities can be divided into the categories: structure, content and format. However, there is little or no empirical evidence found for these modalities. For this reason, the theory could only function in the empirical research (semi-structured interviews with residents and supervisors of the department Anesthesiology of the UMCG) as a structure (topic list) for identifying the perceptions about the modalities of effective feedback in medical OJT. From the interviews the same categories as formulated in the theory are emerged. Within these categories, the residents and supervisors have brought forward the same modalities as identified in the theory and some additions. The modalities 'personal relationship', 'suggestions for improvement' and 'asking questions' are representative examples of these additions. The study ends with a theoretical explanation for the found additions and practical implications based on the results of the investigation. In the future, the found qualitative result may help to develop initial hypotheses and frame investigations optimizing the feedback in medical OJT.

2

1 Introduction

The training of medical specialists exists for the major part of working in the patient care, also called medical on-the-job training (OJT). To learn from this situation as good as possible, residents[1] get feedback about the way they perform their activities. This feedback is crucial, judging from the number of publications about feedback and related topics in medical education (Rolfe & Sanson-Fisher, 2002; Veloski, Boex, Grasberger, Evans & Wolfson, 2006). Medical-education research has shown that feedback is one of the most powerful tools for influencing the learning and performance of residents (Hattie & Timperley, 2007; Kilminster, Cottrell, Grant & Jolly, 2007; Ramani & Leinster, 2008; Reilly, 2007). This influence can be both positive and negative. Constructive feedback, if given in the right way and accepted (and acted upon) by the one being criticized, will result in improvement. But feedback can also be destructive when it is given in an unsafe, condescending or judgmental way (Hewson & Little, 1998; Lloyd & Becker, 2007).
Another consistent finding from publication of medical-educational research is that residents particularly appreciate feedback (Perera, Lee, Win, Perera & Wijesuriya, 2008; Wall & McAleer, 2000). Medical specialists with a supervision' role, who give a lot of feedback, are highly valued by residents (Maker, Lewis, & Donnelly, 2006). If residents consider the relationship with their supervisors as 'reciprocal', i.e. if they feel that they get at least as much back from their supervisor, including in the form of feedback, as they do for their supervisor by taking over patients, then the risk of burn-out symptoms is significantly lower than when they feel that their training costs more than it brings (Prins, Gazendam-Donofrio, Dillingh, van de Wiel, van der Heijden & Hoekstra-Weebers, 2008). These findings underline the importance of feedback in the medical OJT situation.

[1] In Dutch: AIOS, Arts in Opleiding tot Specialist

Almost all medical specialists in our country have, in one way or another, to do with training of residents (Brand & Boendermaker, 2009). For all of these medical specialists with a supervision' role, giving feedback is an important skill that they will use regularly (Kluger & DeNisi, 1996).
Also within the University Medical Centre Groningen (UMCG), the importance of the feedback skills of the medical specialists is recognized. The Wenckebach Institute propagates the importance of feedback in the teach-the-teacher course (a course that focuses on strengthening and improving the educational activities of medical specialist) in the UMCG. The Wenckebach Institute is part of the UMCG and acts on the development and training of all professionals in health care that are working in the UMCG.
Despite the importance that is attached to feedback within the supervision of residents, the institute has no clear overview of the effectiveness of feedback between the supervisor and the resident in the UMCG. The Wenckebach Institute needs an instrument to measure the effectiveness of this feedback, to eventually give program directors and supervisors (medical specialists with supervision' role) points of improvement. Therefore, the aim of this study is to give the Wenckebach Institute more insight in the effectiveness of feedback between supervisors and residents within the UMCG.
Several studies have shown that research on the effectiveness of feedback can only be performed with agreement about what it means (van de Ridder, Stokking, McGaghie & ten Cate, 2008). A clear, operational definition of effective feedback is needed. In order to get insight in the effectiveness of feedback, this research will give an operational definition by focussing on the modalities[2] of

[2] Elements of the operational definition which can be seen as variables of the underlying concept (in this case: effective feedback between residents and supervisors)

effective feedback between residents and supervisors based on scientific literature and perceptions of the stakeholders[3]. In order to conduct this research the following research question will be central:
What modalities does effective feedback between residents and supervisors within the UMCG consist of?
In behalf of the answering of the research question, there are sub-questions created. Theoretical sub-questions are:
How is effective feedback in medical OJT defined?
What modalities does effective feedback between residents and supervisors consist of?
Empirical sub-questions are:
How do stakeholders define effective feedback in medical OJT?
What modalities does effective feedback between residents and supervisors within the UMCG consist of according to the stakeholders?
The structure of this thesis is based on the created sub-questions. In the theory section the (operational) definition of effective feedback in a medical OJT setting based on scientific literature is presented. Furthermore, in the method section it is explained how the identification of the perceptions of stakeholders within the UMCG about the (operational) definition of effective feedback in the medical OJT setting of the UMCG takes place. The practical results of the empirical study can be found in the results section. This entire study ends with a discussion section, in which conclusions and recommendations are defined, based on the results of theoretical and empirical data, about the modalities of effective feedback in the medical OJT setting within the UMCG. In addition, the limitations and suggestions for further research are also discussed in this section.

[3] The stakeholders in this research are residents and supervisors within the UMCG

2 Theory

As already mentioned, feedback on practice is essential to grow in the role of medical specialist. Feedback plays a vital role in the medical setting and increases resident performance levels (Kilminster et al. 2007). The scientific literature is unambiguous about the importance of feedback during supervision of residents (Irby, 1995; Kilminster et al. 2007; Sachdeva, 1996). But, how is effective feedback defined in the literature? This is an important question which must be answered within the framework of the general research question.

2.1 Effective feedback

Based on a systematic literature research, Dutch researchers recently proposed to define feedback in clinical education as: 'Specific information about the comparison between a trainee's observed performance and a standard, provided with the intent to improve the trainee's performance' (van de Ridder, Stokking, McGaghie & ten Cate, 2008). This definition is focused on improvement; but there seem to be more aspects to consider. Based on the principles of adult learning, Sachdeva (1996) concludes that feedback also should seek to appoint and maintain positive elements to achieve a positive learning process. A more complete definition is as follows: 'Specific information about the comparison between a trainee's observed performance and a standard, given with the intent to improve the trainee's performance and maintain that what is good' (Sachdeva, 1996; van de Ridder, Stokking, McGaghie & ten Cate, 2008). This definition will be taken as a starting point in this study about the effectiveness of feedback between residents (trainee) and supervisors (feedback provider).
A clear definition as found in the literature is however not always present in the real world. Mutually, residents and supervisors are frequently not in complete agreement with each other concerning the definition of effective feedback. Supervisors believe they frequently give effective feedback to residents, whereas residents report that feedback is rare (Gil, Heins, & Jones, 1984; McIlwrick, Nair, & Montgomery, 2006; Sender Liberman, Liberman, Steinert, McLeod & Meterissian, 2005). To illustrate this, Sender-Liberman et al. (2005) found that, although ninety percent of attending surgeons reported they gave feedback successfully, only seventeen percent of their residents agreed with this assertion. This illustrates the notion that there are discrepancies between the perceptions of residents and supervisors about the definition of effective feedback. Clinical education is weakened when supervisors and residents do not agree about the definition and use of feedback as an educational tool. In addition, research on effective feedback cannot be performed without an agreement about its meaning. A clear, operational definition of feedback is needed (van de Ridder, Stokking, McGaghie & ten Cate, 2008).

2.2 Operational definition of feedback

An operational definition should increase conceptual understanding about how to give effective feedback in a medical learn setting. In other words, an operational definition provides a method that is essential to facilitate effective feedback between supervisor and resident.
Four operational modalities to produce or identify effective feedback are described in the definition that was taken as main point of this research. These are:

1. Effective feedback data are collected by observation
2. Effective feedback is based on standards
3. Effective feedback gives suggestions for improvement

4. Effective feedback points out what is already of good quality

Further literature research[4] on the modalities of effective feedback in medical OJT settings has shown that the above mentioned operationalization is not exhaustive. An overview of all the found modalities is listed in table 1. The categorization of the modalities is based on literature of Bienstock, Katz, Cox, Hueppchen, Erickson, and Puscheck (2007). The overview shows the degree of empirical evidence[5] of the modalities:

- No evidence
- Low evidence: empirical research is not done in the context of medical education and/ or there are no validity- and reliability-enhancing measures implemented.
- Moderate evidence: empirical research is done in the context of medical education and there are only validity-enhancing measures or reliability-enhancing measures implemented.
- High evidence: empirical research is done in the context of medical education and there are both validity- and reliability-enhancing measures implemented.

[4] This literature review has taken place by searches in the ERIC, PsycINFO and MEDLINE databases focused on the term ‘feedback’, ‘medical education’, ‘residents’ and ‘supervisors’. The search criteria required that feedback was a defining theme in journal articles, Medical Subject Headings (Mesh), thesaurus term and titles of articles. Clear inclusion and exclusion criteria were listed and described to decide on modalities of effective feedback in clinical learning setting

[5] All modalities are checked on empirical evidence. This is done by checking the literature in which the modality is discussed on sources of empirical evidence for this modality. Subsequently, the research method and discussion section of the articles with empirical evidence are important sources of information. The information provided in these sections makes clear if the investigation has taken place within the context of medical education. These sections also give information concerning the presence of validity- and/ or reliability-enhancing measures in the empirical research such as repetition of the research, distribution of the sample, respondent validation, etc. This assessment has led to a labelling: no evidence, low evidence, moderate evidence and high evidence

Concept	Modalities of effective feedback	Empirical evidence
Structure	**Scheduled appointment** (Bhattarai, 07;Bienstock et al. 07;Dobbie and Tysinger, 05;Hesketh and Laidlaw, 02;Kurtz, Silverman, and Draper, 98;Moorhead, Maguire, and Thoo, 04;Norcini and Burch, 07;Westberg and Jason, 93)	**No evidence**
	Mutual initiative (Bhattarai, 07;Bienstock et al. 07;Dobbie et al. 05;Hesketh et al. 02;Kurtz et al. 98;Moorhead et al. 04;Norcini et al. 07;Westberg et al. 93)	**Moderate evidence** (Van Hell, Kuks, Raat, Van Lohuizen, and Cohen-Schotanus, 09)
	Linked to goals (Bienstock et al. 07;Brukner and Altkorn, 99;Cantillon and Sargeant, 08;Ende, 83;Gil et al. 84;Hewson et al. 98;Norcini et al. 07;Sachdeva, 96;van de Ridder et al. 08;Westberg et al. 93)	**High evidence** (Stull, 86)
	Appropriate climate/ setting (Bhattarai, 07;Bienstock et al. 07;Chur-Hansen and McLean, 06;Dobbie et al. 05;Hewson et al. 98;Moorhead et al. 04;Norcini et al. 07;Sachdeva, 96;Vickery and Lake, 05;Westberg et al. 93)	**Low evidence** (Bing-You and Paterson, 97)
Content	**Specific** (Bhattarai, 07;Bienstock et al. 07;Brukner et al. 99;Cantillon et al. 08;Chur-Hansen et al. 06;Ende, 83;Gil et al. 84;Hesketh et al. 02;Hewson et al. 98;Kurtz et al. 98;Moorhead et al. 04;Norcini et al. 07;van de Ridder et al. 08;Vickery et al. 05;Wood, 00)	**Low evidence** (Haber and Lingard, 01)
	Focus on changeable behaviour (Bhattarai, 07;Bienstock et al. 07;Brukner et al. 99;Chur-Hansen et al. 06;Hewson et al. 98;Kurtz et al. 98;Moorhead et al. 04;Norcini et al. 07;Westberg et al. 93;Wood, 00)	**No evidence**
	Limited (Bhattarai, 07;Bienstock et al. 07;Cantillon et al. 08;Ende, 83;Gil et al. 84;Hewson et al. 98;Kurtz et al. 98;Moorhead et al. 04;Norcini et al. 07;Westberg et al. 93)	**Moderate evidence** (Gil et al. 84)
	Based on first hand observations (Bhattarai, 07;Bienstock et al. 07;Cantillon et al. 08;Chur-Hansen et al. 06;Ende, 83;Hesketh et al. 02;Hewson et al. 98;Moorhead et al. 04;Norcini et al. 07;van de Ridder et al. 08;Westberg et al. 93;Wood, 00)	**Moderate evidence** (Van Hell et al. 09)
	Non-judgemental language (Bhattarai, 07;Bienstock et al. 07;Chur-Hansen et al. 06;Ende, 83;Hesketh et al. 02;Hewson et al. 98;Kurtz et al. 98;Moorhead et al. 04;Norcini et al. 07;Westberg et al. 93)	**Low evidence** (Bing-You et al. 97)
	Timely (Bienstock et al. 07;Cantillon et al. 08;Chur-Hansen et al. 06;Ende, 83;Gil et al. 84;Hesketh et al. 02;Vickery et al. 05;Westberg et al. 93;Wood, 00)	**High evidence** (Christoff and And, 79)
Format	**(First) learner's self-critique** (Bhattarai, 07;Bienstock et al. 07;Brukner et al. 99;Hesketh et al. 02;Moorhead et al. 04;Norcini et al. 07;Pendleton, 84;Westberg et al. 93)	**No evidence**
	First good points (Bhattarai, 07;Chur-Hansen et al. 06;Pendleton, 84;Sachdeva, 96;Vickery et al. 05;Wood, 00)	**Moderate evidence** (Stone and And, 84)
	Instructions for improvement (Bhattarai, 07;Bienstock et al. 07;Brukner et al. 99;Cantillon et al. 08;Chur-Hansen et al. 06;Gil et al. 84;Hesketh et al. 02;Hewson et al. 98;Moorhead et al. 04;Norcini et al. 07;Pendleton, 84;Sachdeva, 96;van de Ridder et al. 08;Westberg et al. 93;Wood, 00)	**Low evidence** (Bing-You et al. 97)
	Reciprocate (Bhattarai, 07;Gil et al. 84;Kurtz et al. 98;Moorhead et al. 04;Norcini et al. 07;Vickery et al. 05;Wood, 00)	**Moderate evidence** (DeGregorio and Fisher, 88)
	Interpretation check (Bhattarai, 07;Bienstock et al. 07;Cantillon et al. 08;Kurtz et al. 98;Moorhead et al. 04;Wood, 00)	**No evidence**

Table 1: Conceptual categorization of modalities of effective feedback in medical education literature, including the degree of empirical evidence

2.3 Structural considerations

tructural considerations are proceedings which are conducted before the feedback conversation begins and which have to do with the problem of 'noise' in the interpersonal communication model (Johnson & Johnson, 1987). The interpersonal communication model defines communication as any message sent by a person (sender) to another person (receiver) with the intent of affecting the receiver's behaviour. The sender must encode ideas, feelings, and intentions into a message. This message is transmitted in some form (e.g., nonverbal, written) and send through a channel (e.g., paper, sound waves) to the receiver. The receiver then must decode the message, interpret it, and internally respond to the perceived message. The receiver may or may not send a response back to the sender. Any element that interferes with this effective communication is considered as 'noise' in the process. Noise may occur in the sender (e.g., his[6]attitudes), the channel (e.g., environmental sounds), or the receiver (e.g., frame of reference).

2.3.1 Scheduled appointment

By applying the interpersonal communication model of Johnson and Johnson (1987) to feedback in medical education, we can suggest several areas where the process of feedback could be improved. The resident, because of his or her previous experiences with feedback (i.e., noise), may not be able to recognize such messages or may even disregard the supervisor altogether (Bing-You & Paterson, 1997). Therefore it is important to be clear in advance about when, where, and how to give feedback. Residents should expect feedback sessions to occur. They should understand that such sessions are intended to promote their progress and not for establishing their grades (Bienstock, Katz, Cox, Hueppchen, Erickson & Puscheck, 2007). In spite of the fact that much scientific literature labels the condition 'scheduled feedback appointment' as a modality of effective feedback, no empirical evidence can be found for this modality.

2.3.2 Mutual initiative

All parties should also understand that a request for feedback sessions can be initiated by residents as well as by supervisors. It is essential that residents also have some control over the feedback process. Taking the initiative to ask for feedback is one form of active learning. In this way feedback connects to residents' learning needs and improves their internal motivation (Sachdeva, 1996). These claims are supported by the results of research in which 142 medical students in eight hospitals took part (Van Hell, Kuks, Raat, Van Lohuizen & Cohen-Schotanus, 2009). This study showed that feedback which stemmed from joint initiative was experienced by the medical students to be more instructive than feedback which ensued from the supervisor's initiative.

2.3.3 Linked to goals

The problem that supervisors send an unclear and unconstructive message is also noise in the interpersonal communication model (Bing-You, Bertsch, T & Thompson, 1998). Noise in the message of the supervisor could be a result of a lack of direction in the feedback conversation due to the missing of clear standards of performance at the start of the feedback conversation (van de Ridder, Stokking, McGaghie & ten Cate, 2008). Concrete standards are often not present in medical OJT, since clinical performances can often be performed in different ways. To still give direction in the feedback conversation, it is advised to define learning goals concerning the performance of the resident before the feedback conversation. Afterwards, the feedback can be linked to this goals (Sachdeva, 1996). In the research in which nurses took part, the impact of goal-setting was underlined (Stull, 1986). In the research it is found that the performances of nurses in groups that had feedback based on well-defined goals improved more than the

[6] In this thesis the words 'he' and 'his' are used, in all places where this occurs also 'she' and 'her' can be read

performance of nurses in the group that had feedback that was not based on well-defined goals.

2.3.4 Appropriate climate/ setting

Alternately, the environment, or channel, in which feedback is conducted, may be frequently cluttered (e.g., beepers, interrupting phone calls, high-volume outpatient practices)(Bing-You et al., 1998). Therefore, the supervisor should select before the start of the feedback conversation an appropriate location for the feedback session and manage the physical environment of the room to make it conductive to the needs of the resident and supervisor. Feedback should be provided in comfortable surroundings, ensuring privacy for both resident and supervisor. Also the behaviour of the supervisor is important for an appropriate feedback climate. The supervisor should use appropriate nonverbal behaviours to create a conductive climate. A welcoming smile or a warm greeting from the supervisor can help to put the resident at ease when he enters the room (Sachdeva, 1996). Research by Bing-You et al. (1997) shows that residents give 'appropriate nonverbal behaviour of the supervisor' and 'private setting' the label 'sender credibility'. Sender credibility ensures that residents do something with the feedback they receive of their supervisor.

2.4 Content considerations

Once the structural framework for the feedback session has been established it is essential to look to the content of the feedback conversation.

2.4.1 Specific

Feedback needs to include clear examples and critical incidents in order to support its accuracy and to give the resident adequate information about the positive and negative aspects of his performance. The feedback session should focus on specific items in cognitive knowledge, skills, and attitudes that have the potential to be remedied (Sachdeva, 1996). Feedback given in general terms is common but this leaves the learner unable to change (Pendleton, 1984). This was also reflected in a qualitative study about the communication skills of clerks (Haber & Lingard, 2001). Clerks received implicit and acontextual feedback, with little specific content. This led to dysfunctional generalizations by students, sometimes resulting in worse communication skills and unintended value acquisition.

2.4.2 Focus on changeable behaviour

Besides that feedback must be specific, it also must focus on behaviour rather than on personality. Telling residents that they are 'incompetent', 'inadequate', 'insensitive' or anything else that categorizes them as people and causes them to feel attacked is usually counterproductive to fostering trust, collaboration, or growth (Westberg & Jason, 1993). Although this modality seems very plausible, it can not be founded with empirical evidence.

2.4.3 Limited

Also, the amount of information provided should be carefully regulated to avoid overloading the resident with too much information. The supervisor should decide where to focus on first, and, once improvement in that area is evident, which items to address in the future (Sachdeva, 1996). Empirical research suggests that both residents and supervisors perceived the amount of feedback as important. But when asked how the feedback is dosed in reality, the opinions differed. The supervisors are more positive about the quantity of feedback, than the residents. Accordingly, both groups rate the modality as important, but they give different meanings to it (Gil et al., 1984).

2.4.4 Based on first hand observations

Feedback should be based on first hand observations of residents' performances (Ende, 1983). However, it is known that, due to tight time constraints, supervisors often fail to observe residents (Irby, 1995). Consequently, feedback is often based on resident information or other second or

third hand data. Feedback on observed behaviour is supposed to stimulate learning, because the supervisor is able to provide focused information (Ende, 1983; Kilminster et al., 2007; Sachdeva, 1996). These claims are supported by the results of research from van Hell et al. (2009). This empirical research showed that feedback on behaviour that had been directly observed was reported by medical students to be more instructive than feedback on behaviour that had not directly been observed.

2.4.5 Non-judgmental language

The languages used during feedback should be non evaluative or non judgmental. Judgmental labels without descriptive information or guidance are not constructive. People enjoy hearing positive labels and dislike negative ones, but neither contributes to the business at hand (Westberg at al., 1993). For non-judgmental feedback, the supervisor must describe what he saw and reflect it back to the resident. (Bhattarai, 2007). This way of formulating feedback is labelled by residents as an effective delivery method of feedback (Bing-You et al., 1997).

2.4.6 Timely

The timing of feedback is the last modality within content considerations. Feedback should be provided in a timely fashion and shared frequently to yield maximum benefits. Long delays between action and feedback tend to reduce the effectiveness of feedback. Also, residents who receive immediate feedback have been found to spend less time processing the information and appear to be more satisfied, compared with those who receive delayed feedback (Christoff & And, 1979).

2.5 Format considerations

Based on the definition of effective feedback, the purpose of a feedback conversation is to improve the resident's performance and maintain the good elements. At the beginning of the conversation, this should be taken in consideration and the general format of the ensuing feedback conversation should be adapted to this.

2.5.1 (First) learner's self-critique

Within this format the resident should be encouraged to state his goals and to participate in self assessment regarding how he is progressing toward these goals and where he may need some assistance. Learning will take place much more easily when the resident develops a realistic idea of his own strengths and weaknesses (Pendleton, 1984). Also the supervisor gets a better insight into the strengths and weaknesses the resident is aware of as well as those the supervisor has not yet recognized (Bienstock et al., 2007). What is more, the resident's remarks reveal his values and his degree of perceptiveness. Knowledge of all these matters is of great value to the supervisor (Pendleton, 1984). Another positive aspect of self-assessment is that residents are less likely to be defensive in the feedback conversation if they critique themselves first (Bienstock et al., 2007). Unfortunately, the already defined outcomes of this modality are not based on empirical evidence.

2.5.2 First good points

The sequence in which positive and negative feedback are shared coincides with the characteristics of the resident. Empirical research by Stone et al. (1984) showed that if the feedback conversation starts with positive comments, the resident is more likely to consider the feedback as accurate, compared with when a feedback conversation opens with negative comments. Because individuals with either an internal locus of control or high self-esteem tend to base their perceptions of feedback accuracy on the favourability of the first information presented, such individuals perceive the feedback provided in a positive-negative sequence to be more accurate than feedback provided in a negative-positive sequence. Also, negative comments in the beginning of the session results in the resident's becoming defensive and blocking out the rest of the information. The positive comments that follow may thus not be clearly heard by the resident (Stone & And, 1984). Failure to hear

positive feedback is detrimental to the maintenance of the good behaviour of the resident. Positive feedback supports, as it happens, the properly behaviour of the resident. If the resident only remembers negative feedback he has no attention to his strengths and these will decrease most likely. In this way the overarching purpose of effective feedback can not be achieved. As a general rule, it is advisable to start with positive feedback and then go on to the negative feedback (Sachdeva, 1996).

2.5.3 Instructions for improvement (follow-up plan)

Following negative feedback, the resident should be given encouragement and future goals attached with specific guidelines for improvement. If the feedback session concludes with the negative feedback, the session may result in the resident's feeling discouraged and lost without direction (Sachdeva, 1996). The supervisor must give practical instructions to the resident for improving the performance. The resulting list of instructions constitutes the resident's action plan. A method for assessing progress, including follow-up appointments between the resident and the supervisor, should be an integral part of that plan (Bienstock et al.,k 2007). This is also reflected in the analysis of Bing-You et al. (1997). In this qualitative study the following question is asked to residents: 'When you are given effective feedback, and you believe it, what other factors would then favour you to improve your performance?' The answers of this question mainly show that concrete improvement instructions (concerning skills, resources and time) at the end of the feedback conversation are important for the residents to improve their performance. In addition, follow-up appointments are also perceived as an important reinforcement of efforts (Bing-You et al., 1997).

2.5.4 Reciprocate

Residents need to be satisfied with the feedback process in order to be motivated to act on the feedback provided by the supervisor. Therefore it is important that the resident is an equal discussion partner during the whole feedback conversation (Sachdeva, 1996). The extent and nature of resident participation in the feedback conversation may have a direct impact on the outcome of the process. DeGregorio and Fisher (1988) conducted a study using psychology students in which the students were randomized to receive top-down feedback or joint feedback. In the top-down feedback session, the students could conduct self-assessment in the beginning of the conversation but in the rest of the conversation they were strongly discouraged from participating in the session and were simply told how well or poorly they had performed in each area. In the joint feedback session, the self assessment was explicitly discussed, self and supervisory appraisals were compared, discrepancies reconciled, and a combined rating form filled out. Results revealed that the students who had been randomized to the joint feedback session were more satisfied with their interviews than were the individuals selected to receive top-down feedback. In the domain of perceived accuracy of feedback, the students who had participated in joint feedback felt that the feedback had been more accurate than did those who received top-down feedback. These findings suggest that participation enhances student satisfaction, and that self-appraisal without discussion is not motivating.

2.5.5 Interpretation check

The final component of the feedback conversation is an interpretation check of the given information. Residents should be asked to verify feedback. Even the most carefully thought out feedback is useless if the resident does not hear it, disregards it, or does not understand it. By asking the resident to agree (or disagree) with and restate the feedback in his or her own words, the supervisor gains the assurance that the resident has understood the nature and content of the feedback and eventually improves his performance (Wood, 2000). This premise is however never proved empirically.

In the end of this section, we can conclude that there are guidelines suggested by several authors for giving effective feedback in a medical OJT setting, with or without (any)

empirical evidence. All these guidelines are combined in one framework. This framework, presented in figure 1, provides the methodology to understand the effectiveness of feedback between residents and supervisors.

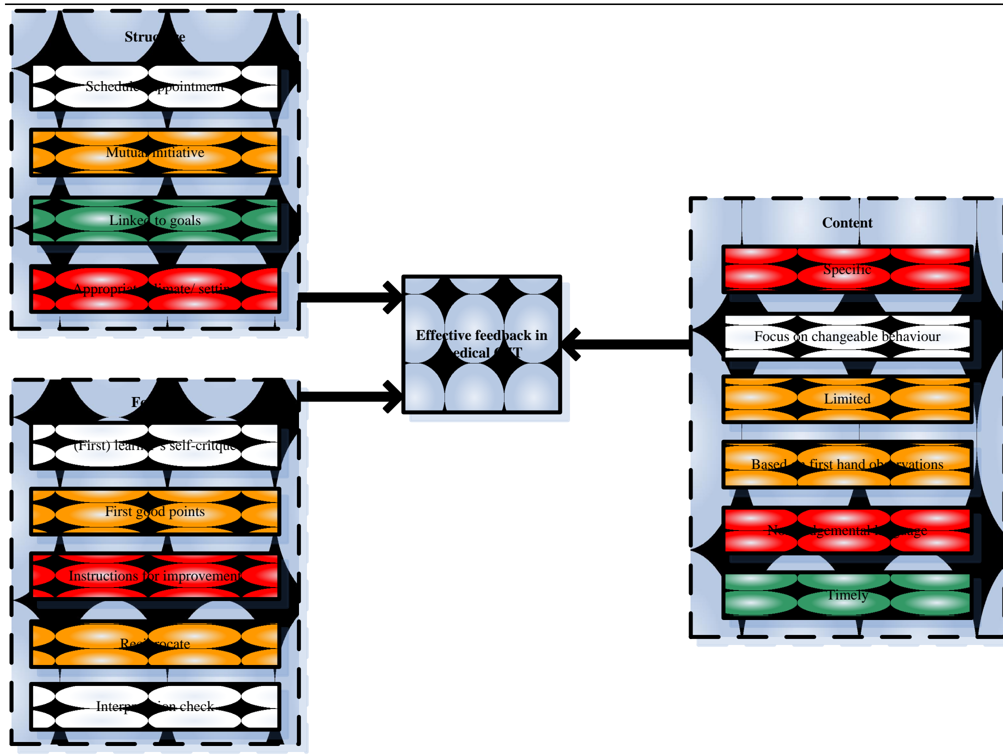


Figure 1: The research model: method to understand the effectiveness of feedback in medical OJT[7]

In this section, the literature concerning the research question has been central. Before it can be determined if the found literature is actually linked to the medical OJT within the UMCG, it is necessary to examine the methods and techniques of research. This is the subject of the next section.

[7] Marginal note: white – no empirical evidence; red – low empirical evidence; orange – moderate empirical evidence; green – high empirical evidence

3 Research Methods

3.1 Research design

Giving and receiving feedback is a social phenomenon. Exploring this social phenomena within the daily reality of stakeholders, is the field of qualitative research (Philipsen & Vernooy-Dassen, 2004; Silverman, 2006).
As already indicated, the modalities found in the literature have mainly low or no empirical evidence. By the scientists it is pretended that in such a state of science it is useful to determine how stakeholders think about the issue. Open and exploratory empirical studies, in the form of semi-structured interviews are useful for this purpose. Previous empirical research done by scientists to a framework regarding effective feedback in medical OJT setting, also used this form of organizational research (Bing-You et al., 1997; Stegeman, 2008). Therefore in this research, semi-structured interviews were conducted as the primary research method.

3.2 Respondents

It is not feasible to include all specializations within the UMCG in the research process. An alternative is to do research in only one discipline, to create a targeted ruling. In this study, the department of Anaesthesiology was chosen. The choice for this discipline flowed naturally from contacts that were acquired in the beginning of the research period and the enthusiasm of the department to cooperate. An anesthesiologist is a medical specialist who anaesthetises patients in need of surgery, who are about to undergo a painful, stressful medical examination and vitally endangered patients who need urgent help. The anesthesiologist deals with the vital functions, breathing, circulation, consciousness, temperature control and/ or severe pain. In consultation with the patient, the anesthesiologists search for the preferred method of anaesthesia. For this purpose the patient is pre-operative assessed in the pre-operative outpatient clinic of the Anaesthesiology (POPA). It is assumed that the discipline of Anaesthesiology has a certain degree of uniformity with other disciplines within the hospital because elements of the daily work (and thus certain training aspects) within this discipline occur also in other disciplines. There are transfers, patient consultations, outpatient hours, operations and ‘visits’. In short, there is a general ‘trainer’s case’, so that phenomena will be expressed as shared perceptions by residents and supervisors in other disciplines. Therefore, it is possible to recognize certain patterns within the general medical OJT setting of the UMCG.
The research sources are the residents and supervisors. These are chosen with the aim to obtain a certain type of information. In qualitative research this is called theoretical sampling (Hak, 2004; Malterud, 1995;Malterud, 2001) . If information is needed about the perception of both sender and receiver about effective feedback in medical OJT setting, it is advisable to seek respondents on both sides of the spectrum, in this case, residents and supervisors. Supervisors are in this case medical specialists within the department of Anaesthesiology who are daily active training residents. It is assumed that supervisors have sufficient expertise about their discipline and have good knowledge on how to give effective feedback. Residents are in this case residents of the department of Anaesthesiology from different study years. It is also assumed that this group has an opinion about what is useful or less useful feedback during their practice learning.
The residents and supervisors in the department of Anaesthesiology are unintentional linked to each other, just like other departments in the UMCG, by means of the work schedule.

3.2.1 Composition

Saturation was used to determine how many residents and supervisors should be interviewed in the qualitative research. This is a suitable way to determine how many respondents are sufficient (Baarda, Goede & Teunissen, 2005). For the selection of the residents a random sampling approach was used: five residents in the first year of their training as medical specialist, four residents in the fourth year of their training; six men, three women. For the selection of the supervisors a convenience sampling approach was used: the years of experience ranged from three months to twenty-nine years; four men, two women.

3.3 Data collection method

An overview of the interview questions is provided in Appendix I. The questions are based on previous research on perceptions of feedback in medical OJT setting (Bing-You et al., 1997;Hewson et al., 1998; Stegeman, 2008). After the general questions (study year resident, work experience supervisor, etc.), questions about what residents and supervisors understand by feedback and when they think they give and receive feedback were asked. This is done to find out how the stakeholders interpret and perceive feedback. As already indicated in the theory section, this is obviously not always in conformity (Gil et al., 1984; McIlwrick et al., 2006; Sender Liberman et al., 2005). To draw valid conclusions, it is necessary to reveal the respondents perception on feedback and check if supervisors and residents perceptions match to each other and the theory. After the questions about the definition of feedback, questions about the perception of both parties on effective feedback were asked. A topic list (see appendix II) for the interviews was developed based on the literature study (Hutjes & Buuren, 1996). In this approach, the interviewee has the freedom to make clear what he considers being a modality of effective feedback in a medical OJT setting within the UMCG. This is also called 'narrative interviewing', and is suitable for measuring the perceptions of the interviewees.

The topic list is classified into structure, content and format. In the interviews every category was discussed without specifically discussing the underlying topics. In this way, there was sufficient space to discuss new topics.
All respondents were in advance informed about the research through an email. At the start of the interviews, the respondents first read the informed consent form with the respondents information (including information about the purpose of the study, the use of a voice recorder, the way of publishing the results and anonymity) (see Appendix III).
All interviews were tape recorded and literally typed out. The research material is the textual representation of the decline interviews.

3.4 Data analysis

The interview texts were analyzed with 'the reading for technique' (Little, Jordens, Paul, Sayers, Cruickshank, Stegeman et al., 2002). The interview texts were structured and common themes detected on perceptions of effective feedback in OJT. The computer program ATLAS.ti[8] assisted the analysis process.
After the interviews were literally typed out, the text documents were added in files. Thereafter, the text was examined in more detail. The distinction was made between text parts on: (i) 'structure considerations' (ii) 'content considerations' (iii) 'format considerations'. The passages or phrases are assigned with keywords that refer to its meaning. This process is called 'encoding' (Miles, Huberman & Wood, 1995). For encoding the keywords of the topic list were used, but there was also room for modified keywords and new keywords (Swanborn, 2008). Assign keywords to a text is a form of decontextualization, it is the case to maintain the relationship between the way the stakeholders express their own reality, and the text with key words (Wester, 2004). It means that the 'cut up'

[8] ATLAS.ti, the knowledge workbench. Software for qualitative data analysis, management, and model building.

text should be examined within their original larger passage, recontextualization, with the main question: are these (combinations of) keywords covering the meaning of this passage? During the analysis it is examined whether the existing keywords from the topic list cover a specific piece of text. If this is not the case, new keywords are developed. These are adjusted, refined and extended during the analysis until the contents of a passage is displayed meaningfully. This iterative process leads to the formulation of new keywords that refer to the content of certain passages. All the keywords together serve as building blocks for the investigation of the modalities of effective feedback within the medical OJT setting of the UMCG. Ultimately, these modalities were compared with theory.

4 Results

4.1 Definition (effective) feedback

4.1.1 Residents about feedback

On the question 'What do you mean by 'feedback'', the overall answer of the residents was 'response on my performance'. Residents evaluate this 'response' as effective when it influences their learning and acting in a positive way, so in the end it contributes to the overall goal of the resident: becoming a good anesthesiologist. Residents differ in their opinions about the appearance of the feedback though. There are a number of residents who only recognize feedback as (the conversation linked to) the Mini Clinical Education Exercise (KPB)[9] and/or the quarterly appraisal[10]. There are also residents who recognize feedback as an oral response which is not linked to an assessment:

'in the daily communication I hear what I do right and wrong, that does not necessarily has to be linked to a given moment of assessment'.

Further, feedback is by some residents distinguished in implicit and explicit feedback:

'Implicit feedback, I think is often non verbal: whether your supervisor understood the cooperation, or to what extent he agrees with your approach... Explicit is really pronounced'.

Finally, the residents stress the moment of occurrence:

'Feedback you get when you give anaesthesia during surgery, you really start to hear what you do good and what not. But it can also be given after the surgery, when you discuss together: 'How did it go today?''

This latter form of feedback is also known as 'I will get back to you on something'. It can be about the acting before, during and after the surgery or about an additional complex patient on the POPA. In Table 2, the above given definition and appearances of feedback are summarized.

Definition	Appearance
Response on performance	Written/ oral linked to appraisal Oral not linked to appraisal Implicit Explicit During the act After the act

Table 2: Definition of feedback according to residents Anaesthesiology, including the appearances

4.1.2 Supervisors about feedback.

Overall, the supervisors define 'feedback' in the same way as residents: 'response on the performance'. The supervisors agree feedback to be effective if residents achieve a learning effect. With regard to appearance of feedback, not as much disunion is present as was in the residents results. Most supervisors make a distinction between structured feedback and unstructured feedback. Structured feedback conversations take place at a scheduled time based on KPB or other assessment forms and are formal in nature. Unstructured feedback is given during the performance of the resident and is informal in nature:

[9] In Dutch: KPB, korte praktijk beoordeling. For the use of this assessment form, the supervisor and the resident should first choose together a practical situation as the subject of the assessment, subsequently this act is assessed on two of the seven competencies of CanMEDS 2000 project: medical expert, collaborator, communicator, professional, health advocate, management and scholar (CanMEDS, 2000). This appraisal takes place ten times per year (see Appendix IV).

[10] Training period appraisal: a discussion of the KPB's of the previous period.

‘It is a short response, like: ‘that was good’ or ‘it is better to do this in that situation’, it is a type of 'tips & tricks”.

4.2 Perceptions of effective feedback

Residents and supervisors are asked to give an operationalized definition of effective feedback. From the answers the same three overarching categories, as formulated in the theory, emerged: structure, content and format. Within these categories, the residents and supervisors brought forward modalities, whether or not in accordance with the topic list based on the theory, which they identified as important for effective feedback. An overview of these found modalities is presented in table 3.

	Empirical research	
	Residents	**Supervisors**
Structure considerations: considerations made at the beginning of the feedback conversation.		
Scheduled appointment	X	X
Mutual initiative	X	X
Linked to goals	X	
Appropriate climate/ setting	X	X
Personal relationship	X	
Content considerations: Considerations made with regard to the content of the feedback conversation.		
Specific	X	X
Non-judgmental language	X	X
Timely	X	X
Format considerations: considerations made with regard to the formation of the feedback conversation.		
(First) learner’s self-critique	X	X
(First) good points	X	X
Instructions for improvement	X	
Suggestions for improvement		X
Reciprocate	X	X
Asking questions		X

Table 3: Modalities of effective feedback in medical OJT identified from interviews with residents and supervisors of the department Anaesthesiology within the UMCG

4.3 Structural considerations

4.3.1 Scheduled appointment

A scheduled appointment to receive feedback is evaluated by both categories of respondents as a modality of effective feedback. These scheduled appointments to receive feedback are frequently considered as the discussion of the KPB form with the supervisor, because these are scheduled. According to residents, the advantage of scheduling is that they recognize these feedback moments.

Resident: *‘It is nice when you plan the feedback. So you know: ‘we are planning this’, then I know: ‘On this topic I’m going to receive feedback’. Then I dare to ask more about it, because you recognize it as feedback … ‘I am now learning”.*

What residents also find useful in scheduled feedback is the fact that they have contact with the supervisor before the performance will take place.

Resident: *‘on the day before you can discuss things about how to handle, next after the performance feedback can take place’.*

The supervisors believe they are better able to give effective feedback, when the feedback moment is planned. Since the supervisor is informed of giving feedback, the supervisor will look more carefully to the performance of the resident which makes it possible to give the resident specific feedback based on the accurate observation:

Supervisor: ‘*if I am informed of a planned KPB, then I watch the performance of the resident different. I look more carefully. And I have the opportunity to ask a question during the performance. In this situation I can give better feedback than when a resident asks me: ‘can you give me feedback on the performance of three hours ago’.*

According to some residents this modality has a disadvantage:

Resident: *‘On the other side, you pay more attention to what you do when you know that you will receive feedback on it, but eventually you should build up a routine in your act’.*

4.3.2 Mutual initiative

Supervisors and residents experience the joint initiative for feedback as a positive impulse for the learning of the young anestesiologist. According to residents, it is important to take the responsibility to ask for feedback.

Resident: *'you are responsible for the maximum benefit of your training, so you should just ask for feedback'.*

The initiative of residents to ask for feedback is also by the supervisors considered as important.

Supervisor: *'Look, these are adult people and they must be able to monitor their own training. They must be able to ask for feedback if they think it is necessary. You are actually also a doctor if you come here, so they must take their responsibility'.*

Moreover, the initiative of the supervisor is important for effective feedback. As said by the supervisors, especially in case of the senior residents it is important that supervisors still take initiative for feedback.

Supervisor*: 'I think that we have a responsibility when it comes to feedback, particularly for the older residents. In case of junior residents, everybody knows: 'he knows not that much, we must pay attention to that person'. In the case of senior residents, most supervisors think: 'I have faith in his performance, he doesn't need feedback' and also the residents show not much initiative because they have less contact moments with their supervisors or they are not familiar with a culture of feedback*[11]*. But I think it is important to pay also attention for their performance and show initiative for giving feedback to them'.*

Obviously, a factor which affects the modality 'mutual initiative' is the 'year of training'. This is also highlighted by the residents.

Fourth-year resident: *'At this moment, you need to ask more for feedback than in the first year of the training'.*

Some of the residents indicate that when the initiative of the supervisors is missing, a bias will be introduced.

[11] Note: a few years ago, the Department of Anaesthesiology paid less attention to feedback and the guidelines about KPB did not exist yet.

Resident: *'We work in an academic hospital and all staff should actually have a role in training and that is currently not the case. Therefore always the same people are willing to give feedback and that leads obviously to a one-sided view.'*

4.3.3 Link to goals

The formulation of learning goals, which can be linked to feedback, has positive consequences according to the residents.

Resident: *'you must actively participate in your process of learning and feedback. You must clearly indicate to your supervisor: 'this is what I want to learn. Can you give feedback about that subject in the future?' Because if you say: 'I want some feedback', it can remain very superficial'.*

Some residents argued that the goals should not be too specific and tightly defined. According to them it is better to formulate broader goals that can be adapted to the patients presented at that moment:

Resident: *' A lot of things you actually learn by chance. For example the cases in an emergency situation ... if your supervisor is there and he knows: 'this is someone who has knowledge but he has indicated that his aim is to become more convenient in practice'. Then he can look actively and give structured feedback afterwards'.*

This modality is not identified by the interviewed supervisors.

4.3.4 Appropriate climate/ setting

Residents and supervisors indicate that they like to receive the feedback in a suitable environment. With suitable is meant a trusted environment where the resident can have an undisturbed conversation with the supervisor.

Supervisor: *'just like our conversation here: with closed doors and not with other colleagues around…'*

Resident: '*A trusted environment is also practical. You might review a KPB in the coffee room ... then you feel a bit embarrassed if you think the Pendleton way ... if you must tell what you all did well in a coffee room.'*

The supervisors, however, indicate it is not always possible to provide this kind of environment when giving feedback:

Supervisor: *'in an acute situation, it is sometimes necessary to give a very short and clear reaction in the working environment ... often this feedback is not perceived as safe. These are situations that have certainly impact on the resident, most of the time it is effective'.*

One of the residents provides a broader definition to 'appropriate climate/setting' and speaks about a 'constructive learning culture'.

Resident: *'it is important that you have a constructive learning culture in a department in which supervisors adopt an attitude and emit a signal of: 'guys, we can all learn of this'. That is very influenced by: how far you dare to be vulnerable and how people react on that. That is a cultural phenomenon'.*

Also supervisors have a broader definition; they call it 'constructive atmosphere'.

Supervisor: *'as long as the chemistry between the supervisor and the resident is okay there will be a constructive atmosphere. Aspects of mutual respect and appreciation are important. If this is not present, it is difficult to give feedback'.*

4.3.5 Personal relationship

A modality often cited in the interviews with the residents is 'personal relationship'. Residents indicate a relationship is needed for effective feedback.

Resident: *'feedback is something within the personal atmosphere and therefore the mutual attitude is important. If you know each other, then you dare to be more vulnerable'.*

The interpersonal relationship is important in obtaining feedback. Some of the residents perceive this modality as really important: they claim that by presence of the personal relation the modality '(first) good points' (see page 21) is less or no longer important in the process of receiving effective feedback:

Resident: *'the use of a particular format for a feedback conversation depends on the relationship you have with the supervisor. There are now young some staff members around that I also have known as resident. In the cooperation with such staff members it is not important to hear all the good things before the improvement suggestions. In the cooperation with someone I do not know, and he says 'put that table on the other side', then I feel attacked. Then the format of the conversation is relevant'.*

'Personal relationship' is associated with the aspect 'size of the group'.

Resident: *'In the case of a large group there is the risk that people are more solitary-minded. But I think it works better if you have a smaller group where you know each other, because I think , in this situation you can be more honest in your feedback'.*

This modality is not identified by the interviewed supervisors.

4.4 Content considerations

4.4.1 Specific

According to both interviewed parties, feedback must also be specific to be effective.

Resident*: 'it does not work as they say: 'it is okay', but they should really say what went well, what went wrong and what you can do to improve'.*

Besides this, the residents and supervisors also indicate the importance of giving a specific justification of why a certain performance of the resident is good or not good.

Resident: *'It is useful if you hear from one supervisor: 'Look, it is wrong to put the tube in this situation in the left nostril, because this or that is the reason'. And another says: 'It is a good deed to put it left, because this or that is the reason'. And then you can go up for yourself what you find most useful'.*

When instructions for improvement are given, specific justification is also important.

Supervisor: *'I know that for many things there is no one correct way to accomplish and therefore I give, if possible, a reasoning for why in this case I believe this method is better than other methods. You can not say: 'It must always be done this way', because there is no single method that always can be applied. But it is good to make a difference so residents learn to understand why a method is used in a particular situation'.*

4.4.2 Non-judgemental language

Non-judgemental language is seen by residents and supervisors as a modality of effective feedback.

Supervisor: *'So you must be critical, but it must be explained in constructive, non-judgmental language. You can easily break people, especially in the first time here I think. The operating-room environment is quite overwhelming for the young doctor. And I think you really have to watch out for condemning your feedback.'*

Resident: *'I have had meetings in the past where I ventilated an experienced problem, subsequently I was condemned by my supervisor: 'worthless done'. Then you think: 'I never say something about a problem again'.*

The last citation is according to residents an example of an attitude which resists a 'learning culture'. In addition to the importance of non verbal behaviour, the verbal behaviour of the supervisor is also important in creating a learning culture and ultimately to facilitate effective feedback.
The supervisor can remain non-judgmental by differentiating the feedback conversation.
Supervisor: 'I am very careful with my choice of words to explain things when I am not certain enough. In that case I say: 'I have a bit of a feeling that you... can you agree or do you think that I got it wrong?' At that time you have automatically a short conversation'.

4.4.3 Timely

Residents and supervisors consider timely feedback as positive for the learning process of the resident.

Residents: *'Yes, I think the best is to get as soon as possible feedback because in that case it is still up to date. And certainly at the end of the day, you often have other things to do and than the feedback goes by the board'.*

Another advantage of timely feedback is the possibility for the resident to implement the feedback directly.

Residents: *'Mostly, the same procedure will occur on the same day. If your supervisor has given you instructions for improvements on a specific procedure, you can directly apply these'.*

Supervisor: *'I think that it is important to talk immediate to a person about what has occurred. And if possible, for example, a particular action is not successful or there are problems, than try to repeat on the same day and improve the act which caused the problems'.*

4.5 Format considerations

4.5.1 (First) learner's self-critique

The feedback format in which (first) the resident provides feedback about his own actions is considered by the interviewee residents and supervisors as one of the modalities of effective feedback. Residents are challenged to think more about their own actions, which leads to more involvement with their learning.

Resident: *'you are more actively reflecting your own performance than if a supervisor simply says: 'Well, I saw that you did so and so''.*

The benefit for the supervisors is the fact that this format gives them a better idea of how residents judge their own performance. This modality also allows the supervisor to adapt the feedback more to the personality of the resident.

Supervisor: 'one has problems to appoint positive things because they always see the negative things and the other only sees the positive things and has difficulty to look self-critical. In the feedback conversation I can adjust them and show the other side of the coin'.

4.5.2 (First) good points

Residents and supervisors also prefer a feedback format in which (first) positive things are provided.

Resident: *'I think providing positive things is important, because only hearing what went wrong is not motivating. If you first get to hear what went well and then what you are not doing well and what you can improve, then there is motivation to work with the improvement suggestions'.*

Supervisors: *'Just from experience with your own children you already know that if you have positive things to highlight, then you get a very positive atmosphere to discuss the negative things'.*

Obviously, discussion of good points lowers the threshold of receiving negative feedback and keeps residents motivated. As previously mentioned, a personal relationship between the resident and the supervisor disposes this modality.

4.5.3 Instructions for improvement

Instructions for improvements are an essential modality of effective feedback according to the residents. Feedback can be really effective if residents are provided with concrete improvement points.

Resident: *'what you often hear: 'Well, your performance is conforming your training period'. It is not perfect yet, but for now it is good. That is good to hear, but you have no instructions about how you could improve'.*

Preferably, the resident wants a follow-up plan linked to the improvement instructions in the feedback, making it possible to inspect the long-term learning. This plan needs to be developed in cooperation with the same supervisor.

Resident: *'at a certain moment you get from a supervisor good feedback for improvement, in that situation I would like to meet this supervisor two weeks later and than compare the two feedback moments. Than you can talk about your learning curve. It is important to do this with the same supervisor because another supervisor maybe has other standards which makes comparison not possible'.*

As already mentioned, the instructions must also include specific justification.

4.5.4 Suggestions for improvement

Instead of the instructions for improvement preferred by residents, supervisors consider that it is better to give only suggestions for improvement to achieve a learning effect. The difference between suggestions and instructions for improvement is that in the case of instructions it is already clearly known for the resident how the act can be better and in the case of the suggestions, the resident only gets a 'push' in the right direction and he ultimately must find the right solution.

Supervisor: *'If residents do not know certain things, I hope that it stimulates them to find a solution by themselves. In such a situation I don't explain it over and over again. Mostly, at that time I say: 'Well, there is clearly a gap, with that you must get to work once'. Then I try to return to the subject a next time'.*

According to the supervisors this way of giving feedback is important for 'the stimulation of the resident', a significant aspect for the supervisors to achieve a positive learning effect.

4.5.5 Reciprocate

The modality 'reciprocate' also emerged in the interviews with both respondents. Residents appreciate the opportunity to react or to ask for additional information if necessary.

Resident: *'Feedback must take place at a time when there is the opportunity to give a reaction or to ask questions'.*

One of the supervisors mentioned 'reciprocate' already in her definition of feedback.
Supervisor: *'Feedback is dual communication: you give comments and you get comments back. I think that it must be a dynamic and interactive process in order to remain effective'.*

4.5.6 Asking questions

For a positive learning process, supervisors assume the modality 'asking questions' important. These questions can be part of the format for giving feedback and can be a response on to the reasoning of the residents…

Supervisors: *'I can ask: why you did it in that way and not so and so? Not to criticize someone, but to make him aware of the several manners within the profession and eventually stimulate his learning'.*

Or the questions are related to hypothetical situations…

Supervisor: *'I sometimes ask the question at the end of a feedback conversation: 'If the action that you've just done happens in this situation…, what do you do?' By answering that question the*

knowledge of this resident grows and he knows how to act in an unusual situation'.

Supervisors claim that just as the modality 'instructions for improvement', asking questions helps to stimulate the resident and achieve a positive learning effect in the end.

5 Discussion

This study aims to provide the Wenckebach Institute more insight in the effectiveness of feedback between supervisors and residents within the UMCG, in order to provide points of improvement to the program directors and supervisors. For this purpose, a clear, operational definition of effective feedback is needed. The aim of this study is to investigate the modalities of effective feedback between residents and supervisors in the UMCG. The following research question was formulated: *What modalities does effective feedback between residents and supervisors within the UMCG consist of?*
First, the (operational) definition of effective feedback between residents and supervisors in a medical OJT setting was developed with the use of scientific literature. Numerous authors in both medical and business education have proposed several modalities of effective feedback. There is, however, little empirical evidence, especially in medical education. For this reason, the modalities found functioned in the empirical research of this thesis as a format (topic list) for identifying the perceptions of residents and supervisors about the modalities in medical OJT. It was not possible to do verifiable and explanatory judgments about the literature found. The empirical study had therefore a descriptive and explorative nature and is complementary to previous scientific research on this subject.

5.1 Main findings

The perceptions found in the empirical research of this thesis about the definition of feedback shows a discrepancy with the definition composed from other professionals (Sachdeva, 1996; van de Ridder, Stokking, McGaghie & ten Cate, 2008). Both residents and supervisors define feedback in medical OJT as 'a response on the performance' instead of the definition found in the theory: 'information about the comparison between observed performance and a standard'. The possible reason for this discrepancy is the environment in which the feedback is given. Within the profession of the anesthesiologist there only are a few standards and certain operations can be carried out in various ways. Comparisons between performance and standards are therefore in many cases not possible. Residents and supervisors distinguish different appearances of feedback though. In general, within the distinguished appearances of feedback, two types of feedback can be recognized: unstructured, informal, implicit feedback during the performance and structured, formal, explicit feedback after the performance. The literature calls the unstructured, informal, implicit feedback during the performance 'feedback on the fly' (Bienstock et al., 2007). Although an appropriate setting and a scheduled appointment are important for effective feedback, immediacy feedback in the working environment can also be very useful. Learners need to know that such feedback is meant to be supportive, with the goal of improving performance. Therefore the literature recommends combining this feedback with the other distinguished type. The structured, formal, explicit feedback can be used to return to the 'feedback on the fly'. One of the most problematic aspects of 'feedback on the fly' is the fact that students may not recognize the information they receive as feedback. To overcome this problem, the literature advises the supervisors to use the word 'feedback' during their 'feedback on the fly' conversation with the resident, for example: 'Your performance started out good, but I want you to have the feedback that…'
Both residents and supervisors agreed that the feedback is effective if the resident achieves a learning effect. The operationalized definition of effective feedback based on the perceptions of residents and supervisors in comparison with the structure found in the theory is shown in table 4.

	Theoretical framework	Empirical research	
		Residents	Supervisors
Structure considerations: considerations made at the beginning of the feedback conversation.			
Scheduled appointment	X	X	X
Mutual initiative	X	X	X
Linked to goals	X	X	
Appropriate climate/ setting	X	X*	X*
Personal relationship		X	
Content considerations: Considerations made with regard to the content of the feedback conversation.			
Specific	X	X*	X*
Focus on changeable behaviour	X		
Limited	X		
Based on first hand observations	X		
Non-judgmental language	X	X	X
Timely	X	X	X
Format considerations: considerations made with regard to the formation of the feedback conversation.			
(First) learner's self-critique	X	X	X
(First) good points	X	X	X
Instructions for improvement	X	X	
Suggestions for improvement			X
Reciprocate	X	X	X
Interpretation check	X		
Asking questions			X

*In the empirical research this modality has a broader definition

Table 4 : Modalities of effective feedback in medical OJT setting identified from medical education literature and interviews with residents and supervisors of the department Anaesthesiology within the UMCG.

5.1.1 Structural considerations

The modalities found in this empirical research within the 'structure considerations' are generally consistent with the literature. Although, 'linked to goals' was only identified by the residents. For the modality 'mutual initiative' there was found an influencing factor: 'year of training'. The explanation for this is the fact that the senior resident has less supervision and contact moments with the supervisor than the junior resident, as a result of which the mutual initiative decreases. Furthermore, 'appropriate climate/ environment' was defined broader by the respondents: residents talked about 'constructive learning culture' and supervisors about 'constructive atmosphere', aspects such as mutual respect and appreciation are necessary. Supervisors claim that there is an exception on the modality 'appropriate climate/ environment'. They claim that in an acute situation it is more effective to give feedback in the working environment. An explanation for this statement can be found in the previously discussed theory of 'feedback on the fly'. Another addition is the modality 'personal relationship', put forward by the residents. This modality is reflected in the theory of competence-related training (Rogers & Németh-Linnebank, 1971). According to this theory, the personal relationship between the supervisor and the trainee is of crucial importance in the learning process of the trainee and thus also in the provision of feedback within this process. The following qualities of the supervisor are essential: authenticity, an attitude of appreciation, acceptance, trust and empathy towards the trainee. This theory underpins the findings of 'personal relationship' and also the broader definition of 'appropriate climate/ environment'.

5.1.2 Content considerations

Half of the modalities within the 'content considerations' found in the literature are not found in the empirical research of this thesis. A plausible reason for the absence of 'focus on changeable behaviour' is the lack of empirical evidence in previous studies. Nevertheless, for 'limited' and 'based on first hand observations', moderate evidence was found in the past. The reason why these two modalities are not mentioned in the interviews is possibly related to one of the limitations of this empirical research: some modalities of effective feedback can be taken for granted by the respondents, therefore it is likely that these modalities are not specifically mentioned in the interviews. The modality 'specific' was broader defined by the residents:

besides that there should be specifically appointed what goes well or what could be improved, the supervisor also must provide a justification for this. This can be explained by the environment in which the feedback is given, an environment where clear standards are absent. By including argumentation, the resident learns why a supervisor is acting in given situation in a certain manner. Ultimately, the resident can choose which action he finds the most plausible in a given situation.

5.1.3 Format considerations

Within the 'format considerations', the modality '(first) learner's self-critique' was identified by residents and supervisors. According to the supervisors this is helpful in adapting the feedback to the personality of the resident. This is consistent with the theory of 'the Johari window' (Craen, 1997). The Johari window indicates that people do not fully know themselves (blind spot), that people hide a part of their values, ideas and practices for others (hidden field), that people do not know a part of their personality themselves (unknown itself), and that a part of their personality is known by themselves and others (the free space). The size of the quadrants is linked to the relationships. When we first meet someone the 'free space' is smaller and the 'hidden area' bigger. The application of the feedback format '(first) learner's self-critique' helps in increasing the 'free space': both supervisor and resident are more aware of the behaviours, values and ideas of the resident. The increase of the 'free space' of the resident has a positive learning effect. Both prefer also '(first) positive points'. However, the residents claim that this modality is unnecessary in the case 'personal relation'. In this case, there is an atmosphere where the improvement points can be immediately discussed, instead of first discussing the good points. The modality 'instructions for improvement' found in the literature is also found in the interviews with the residents, with the addition that these instructions also must include specific justification. Conversely, the supervisors support another variant: 'suggestions for improvement', the resident only gets a 'push' in the right direction and he must ultimately find the right solution self. This modality is related to the theory of curiosity as an explicit basis for learning (Montessor. & Prins-Werker, 1976): curiosity encourages a natural desire to satisfy knowledge and experience. To reflect curiosity it is important that there are challenging stimuli offered by the environment. In this case, the curiosity is stimulated by indicating only the direction of the solution to the resident and not the whole solution. This theory is also applicable to the modality 'asking questions' as defined by the supervisors. By asking questions during the feedback, the resident gets incentives for curiosity. The modalities 'instructions for improvement' and 'suggestions for improvement' seem contradictory. However, the theory of Grow (1991) indicates that these two modalities can be both applied within the setting of medical OJT. According to this theory, the choice for 'instructions' or 'suggestions' has to do with the stage of learning of the resident. As the resident progresses, there often is a shift from being dependent (where the resident needs substantial input and direction) to being self-directed (where the resident takes personal responsibility for his own learning, he only needs some guidance). This means that supervisors must shift in the way they discuss the improvement of the resident from an authoritarian way (instructions for improvement) to a delegating way (suggestions for improvement). The last finding within the 'format considerations' is that the modality 'interpretation check' found in the literature is not found in the empirical research of this thesis. A plausible reason for the absence is the lack of empirical evidence in previous studies.

5.2 Strengths and limitations

5.2.1 Strengths

A strength of this study is the usage of semi-structured interviews, which provides more in-depth results as compared to a survey with closed questions. This allows more clarification of complex phenomena. Another strength of this research is the selection of respondents.

Both residents and supervisors are interviewed. In earlier studies, often only respondents of one side of the spectrum were represented; the receiver or the sender of feedback. In addition, the discipline of anaesthesiology has a certain degree of uniformity with other disciplines: transfers, patient consultations, outpatient hours, operations and 'visits'. Because of that, the empirical research of this thesis gain in possibilities to make general statements about the perceptions of stakeholders in medical OJT within the UMCG concerning effective feedback. Furthermore, a complete and structured literature review is part of this research. The established theoretical framework is a good reflection of what is already identified by science concerning effective feedback in medical OJT.

5.2.2 Limitations

A limitation of this research is the subjectivity that can not be excluded, nor on the side of the researcher, nor that of respondents. This imposes a liability to the reliability of the research. Low reliability is inherit to qualitative research (Hak, 2004), but there are some ways to increase the reliability. In this research the reliability was increased by taping all the interviews and by using two types of research sources (respondents and supervisors). The reliability would also be increased by using a 'peer debriefer' (Hak, 2004): an appropriately qualified person who assists the researcher in coding the interviews and constructing the final modalities. This is not used in this research because of practical considerations. This limitation is known as 'single interpreter'. Another limitation was the balance between 'general' and 'particular'. The stories of residents and supervisors are richer and more nuanced than expressed in the empirical exploration. There had to be made some concessions to the richness of the data. Nevertheless, this thesis provided a picture in which the respondents can identify themselves. Finally, as mentioned before some modalities of effective feedback can be taken for granted by the respondents, therefore it is likely that these modalities are not specifically mentioned in the interviews.

5.3 Conclusions and suggestions for further research

By knowing the strengths and limitations, the main conclusions and the suggestions for further research can be formulated. As mentioned earlier, this research was complementary to previous research; it tried to provide new insights concerning the (operational) definition of effective feedback in a medical OJT setting by determining perceptions of both residents and supervisors of the department Anaesthesiology within the UMCG about the modalities of this definition. The main conclusions of this study are showed in figure 2. This figure shows a model in which the modalities of effective feedback between residents and supervisors within the UMCG are represented.

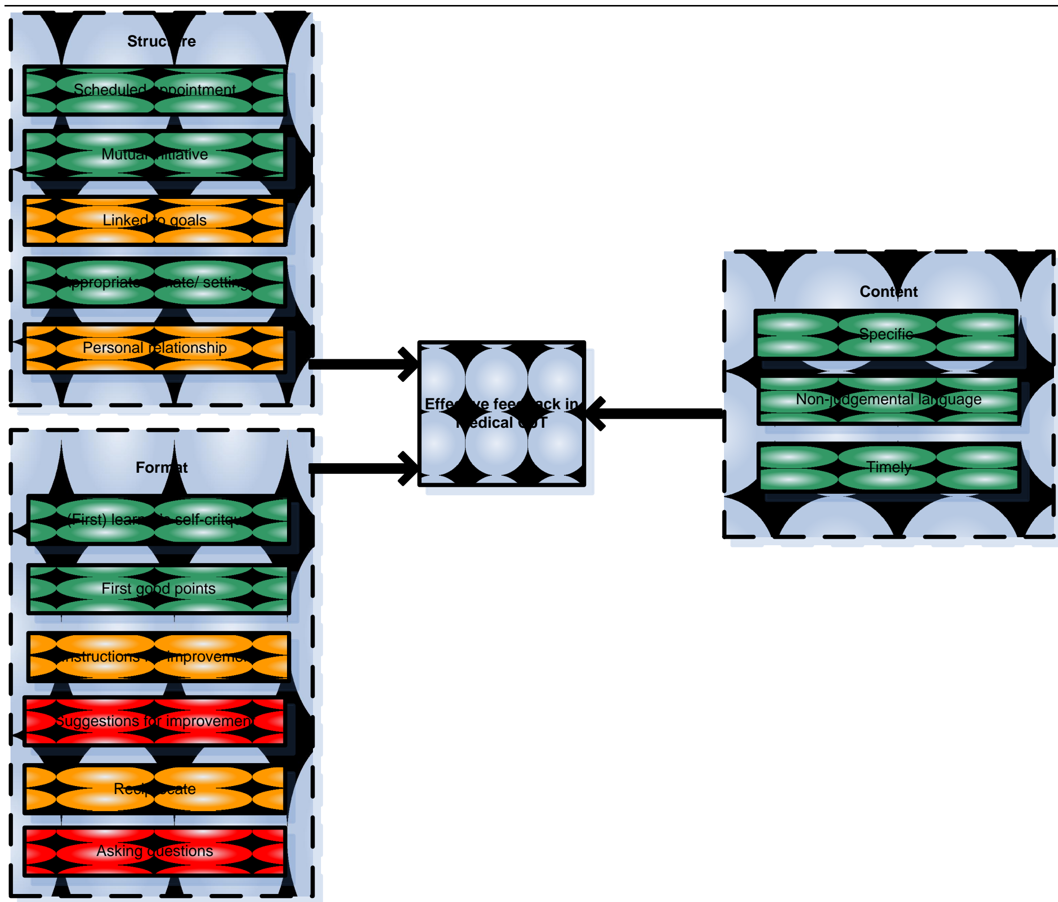


Figure 2: Model of effective feedback between residents and supervisors within the UMCG[12]

[12] Marginal note: green – based on perceptions of both supervisors and residents from the department Anesthesiology within the UMCG; orange – based on perceptions of only residents from the department Anesthesiology within the UMCG; red – based on perceptions of only supervisors from the department Anesthesiology within the UMCG

Consequently, the first step in giving the Wenckebach Institute more insight in the effectiveness of feedback in medical OJT within the UMCG is created. The next step in this process is to test the found modalities. This is a new research phase in which a quantitative research survey with closed questions about the degree of learning effect of the found modalities can be used. This research should only take place among residents, since they can best estimate the impact of the modalities on their process of learning. It is recommended to use residents of different training years, from different departments and from different hospitals (academic and peripheral) as respondents for the survey. Based on the findings of this follow-up study, an instrument to measure the effectiveness of the feedback can be made. With this instrument, The Wenckebach Institute can measure the effectiveness of the feedback between residents and supervisors in the UMCG, so that they can eventually give program directors and supervisors specific points of improvement. This instrument could also be used in other hospitals to improve the feedback in medical OJT. Another suggestion for further research is testing if the found modalities are also applicable in the feedback of other trainer-trainee relations, for example clerk - resident or trainee - trainer within a commercial business operation. In this case, the qualitative results may help to develop initial hypotheses and frame further investigations.

5.4 Practical implications

At the end of the discussion, a short reflection on the innovation of feedback in medical OJT within the UMCG will be given. Despite the fact that further research should be done, some practical implications can already be defined based on the preliminary findings of this study.
The importance of feedback in medical OJT is recognized by the UMCG. Within this hospital, feedback is an important part of innovation in the training of residents. In the current situation of the UMCG, the Wenckebach Institute propagates the importance of feedback in the teach-the-teacher course. In this course, the supervisors learn to give feedback according to the Pendleton rules[13]. This format is consistent with many of the modalities of effective feedback found in the empirical research of this thesis. Nevertheless, there are some additions on this format. It is recommended that supervisors make an assessment of the stage of learning (dependent or self-directed) of the resident concerned, based on the answer to the question: 'what could be better and how?' Subsequently, the supervisor can respond to this by giving in case of the dependent resident instructions of improvement and in case of the self-directed resident only suggestions of improvement. The Wenckebach Institute can promote this addition to the Pendleton format in the teach-the-teacher course by making supervisors aware of the different stages of learning of the residents and to inform them about the ways to adapt to these stages in the feedback conversation. It is also recommended that the supervisors learn in this course to formulate their feedback specific and in non-judgemental language including a clear justification, for example: 'When you did / said ... I was (concerned, annoyed, upset, etc), because ...' Moreover, in the course it must be point out that in addition to the routine questions from the Pendleton rules, the supervisors could encourage the learning process of the resident by asking questions about the reasoning of their actions or how they would perform as the same operation would take place in other situations.
Despite the above additions, there are a number of modalities that are not yet supported. A good accumulation to the Pendleton format is a more personal approach structure towards feedback. Specifically, this feedback structure might look like this: prior to collaboration between supervisor and resident there should be a conversation between both parties. During this conversation, the resident should briefly indicate how he assesses the tasks to be performed, whether he may need

[13] Format of the Pendleton rules (Pendleton, 1984):
Ask the resident: what went well?
Add as supervisor: what was good
Ask the resident: what could be better and how?
Add as supervisors: what can be better and how

help and what he wants to learn that day. They also can plan during this conversation the moment of feedback and if necessary the subject of the KPB. This conversation at the beginning of the collaboration, allows the supervisor eventually to give focused feedback linked on the learning goals of the resident. Furthermore, by means of this conversation the supervisor shows appreciation and respect for the learning process of the resident. This creates an appropriate climate/ setting to give feedback and ultimately a learning culture. In addition, the residents are during the conversation forced to think about their learning goals, therefore the responsibility for their own learning increases. Due to this, residents become less dependent and more self-directed so that the supervisor ultimately only has to give suggestions for improvement. Finally, this conversation is also creating a personal relation between the resident and supervisor, even within a large department where residents are dealing with many different supervisors and vice versa, because the supervisor acts more like a coach than a supervisor through which the relation with the resident is more personal. This has a positive impact on the feedback conversation. The Wenckebach Insitute can establish this structure during the teach-the-teacher course by indicating the importance of this conversation to the supervisors and motivating them to apply this effectively. There are also implications for the residents. The program directors must ensure that in the education of the residents attention is paid to motivate the residents to take their responsibility for their own learning and to learn them formulating their learning objectives.
The last improvement suggestion has to do with the different appearances of feedback. To make 'feedback on the fly' supportive, residents should always discuss the content of this feedback again within a structured feedback conversation after the performance based on the above recommended format. The residents must recognize 'feedback on the fly' as feedback; therefore the supervisor must use the word 'feedback' if they give feedback to the resident. The supervisors can be informed about these recommendations by means of the teach-the-teacher course.

6 References

CanMEDS 2000: Extract from the CanMEDS 2000 Project Societal Needs Working Group Report. 2000.

Baarda, D. B., Goede, M. P. M., & Teunissen, J. 2005. ***Basisboek kwalitatief onderzoek : handleiding voor het opzetten en uitvoeren van kwalitatief onderzoek***. (2e, geheel herz. dr ed.) Groningen: Stenfert Kroese.

Bhattarai, M. 2007. ABCDEFG IS - the principle of constructive feedback. ***JNMA.J.Nepal.Med.Assoc.***, 46(167): 151-156.

Bienstock, J. L., Katz, N. T., Cox, S. M., Hueppchen, N., Erickson, S., & Puscheck, E. E. 2007. To the point: medical education reviews--providing feedback. ***Am.J.Obstet.Gynecol.,*** 196(6): 508-513.

Bing-You, R. and Paterson, J. Feedback falling on deaf ears: Residents' receptivity to feedback tempered by sender credibility. ***Med.Teach.*** 1997.

Bing-You, R. G., Bertsch, T., & Thompson, J. A. 1998. Coaching Medical Students in Receiving Effective Feedback. ***Teaching and Learning in Medicine: An International Journal***, 10(4): 228.

Brand, P. L. & Boendermaker, P. M. 2009. Give feedback: crucial competence in medical education. ***Ned.Tijdschr.Geneeskd.***, 153(6): 250-253.

Christoff, K. and And, O. Teaching Interviewing Skills: Immediate Versus Delayed Feedback. 16-6-1979.

Craen, W. 1997. ***Omgaan met anderen : een communicatiekunst.*** (3e, verm. uitg ed.) Leuven ; Amersfoort

Ende, J. 1983. Feedback in clinical medical education. ***JAMA***, 250(6): 777-781.

Gil, D. H., Heins, M., & Jones, P. B. 1984. Perceptions of medical school faculty members and students on clinical clerkship feedback. ***Journal of Medical Education,*** 59(11): 856-864.

Haber, R. J. & Lingard, L. A. 2001. Learning Oral Presentation Skills. ***JGIM: Journal of General Internal Medicine***, 16(5): 308-314.

Hak, T. Waarnemingsmethoden in kwalitatief onderzoek. 2004.

Hattie, J. & Timperley, H. 2007. The power of feedback. ***Review of Educational Research***, 77(1): 81-112.

Hewson, M. G. & Little, M. L. 1998. Giving feedback in medical education: verification of recommended techniques. ***J.Gen.Intern.Med.***, 13(2): 111-116.

Hutjes, J. M. & Buuren, J. A. 1996. ***De gevalsstudie : strategie van kwalitatief onderzoek.*** (2e dr ed.) Meppel

Irby, D. M. 1995. Teaching and learning in ambulatory care settings: a thematic review of the literature. ***Acad.Med.***, 70(10): 898-931.

Johnson, D. & Johnson, F. 1987. ***Joining together : group theory and group skills***. (3rd ed ed.) London : Prentice-Hall International.

Kilminster, S., Cottrell, D., Grant, J., & Jolly, B. 2007. AMEE Guide No. 27: Effective educational and clinical supervision. ***Med.Teach.,*** 29(1): 2-19.

Kluger, A. & DeNisi, A. 1996. The effects of feedback interventions on performance. ***Psychological Bulletin***, 119(2): 254.

Little, M., Jordens, C., Paul, K., Sayers, E., Cruickshank, J., Stegeman, J., and Montgomery, K. Discourse in different voices: reconciling N=1 and N=many. -55. 2002.

Lloyd, B. W. & Becker, D. 2007. Paediatric specialist registrars' views of educational supervision and how it can be improved: a questionnaire study. ***J.R.Soc.Med.***, 100(8): 375-378.

Maker, V. K., Lewis, M. J., & Donnelly, M. B. 2006. Ongoing faculty evaluations: developmental gain or just more pain? ***Curr.Surg***., 63(1): 80-84.

Malterud, K. 1995. The legitimacy of clinical knowledge: towards a medical epistemology embracing the art of medicine. ***Theor.Med***., 16(2): 183-198.

Malterud, K. 2001. The art and science of clinical knowledge: evidence beyond measures and numbers. ***Lancet***, 358(9279): 397-400.

McIlwrick, J., Nair, B., & Montgomery, G. 2006. 'How am I doing?': Many problems but few solutions related to feedback delivery in undergraduate psychiatry education. ***Academic Psychiatry***, 30(2): 130-135.

Miles, M., Huberman, A. Michael, and Wood, R. ***Qualitative Data Analysis: An Expanded Sourcebook*** (2nd edn). -15. 1995.

Montessori, M. & Prins-Werker, J. J. 1976. ***Aan de basis van het leven : (de absorberende geest)***. (2e [Herdr.] ed.) Amsterdam

Pendleton, D. 1984. ***The consultation : an approach to learning and teaching.*** Oxford [etc.] : Oxford University Press.

Perera, J., Lee, N., Win, K., Perera, J., & Wijesuriya, L. 2008. Formative feedback to students: the mismatch between faculty perceptions and student expectations. ***Med.Teach***., 30(4): 395-399.

Philipsen, H. and Vernooy-Dassen, M. ***Kwalitatief onderzoek : nuttig, onmisbaar en uitdagend.*** -47. 2004.

Prins, J. T., Gazendam-Donofrio, S. M., Dillingh, G. S., van de Wiel, H. B., van der Heijden, F. M., & Hoekstra-Weebers, J. E. 2008. The relationship between reciprocity and burnout in Dutch medical residents. ***Med.Educ***., 42(7): 721-728.

Ramani, S. & Leinster, S. 2008. AMEE Guide no. 34: Teaching in the clinical environment. ***Med.Teach.***, 30(4): 347-364.

Reilly, B. M. 2007. Inconvenient truths about effective clinical teaching. ***Lancet***, 370(9588): 705-711.

Rogers, C. & Németh-Linnebank, C. 1971. ***Leren in vrijheid.*** Haarlem : De Toorts.

Rolfe, I. E. & Sanson-Fisher, R. W. 2002. Translating learning principles into practice: a new strategy for learning clinical skills. ***Med.Educ***., 36(4): 345-352.

Sachdeva, A. K. 1996. Use of effective feedback to facilitate adult learning. ***J.Cancer Educ***., 11(2): 106-118.

Sender Liberman, A., Liberman, M., Steinert, Y., McLeod, P., & Meterissian, S. 2005. Surgery residents and attending surgeons have different perceptions of feedback. ***Med.Teach***., 27(5): 470-472.

Silverman, D. 2006. ***Interpreting qualitative data : methods for analyzing talk, text and interaction***. (3rd) London

Stegeman, J. 2008. ***Gezel bij moderne meesters : een onderzoek naar het verwerven van praktijkkennis in de opleidingen tot chirurg en kinderarts.***

Stone, D. & And, O. 1984. The Effects of Feedback Sequence and Expertise of the Rater on Perceived Feedback Accuracy. ***Personnel Psychology***, 37(3): 487-506.

Stull, M. K. 1986. Staff nurse performance. Effects of goal-setting and performance feedback. ***J.Nurs.Adm***, 16(7-8): 26-30.

Swanborn, P. G. 2008. ***Case-study's : wat, wanneer en hoe?*** (4e dr ed.) Amsterdam .

van de Ridder, J. M., Stokking, K. M., McGaghie, W. C., & ten Cate, O. T. 2008f. What is feedback in clinical education? ***Med.Educ.***, 42(2): 189-197.

Van Hell, E., Kuks, J., Raat, A. N., Van Lohuizen, M., and Cohen-Schotanus, J. ***Instructiveness of feedback during clerkships : Influence of supervisor, observation and student initiative***. 2009.

Veloski, J., Boex, J. R., Grasberger, M. J., Evans, A., & Wolfson, D. B. 2006. Systematic review of the literature on assessment, feedback and physicians' clinical performance: BEME Guide No. 7. ***Med.Teach.,*** 28(2): 117-128.

Wall, D. & McAleer, S. 2000. Teaching the consultant teachers: identifying the core content. ***Med.Educ.***, 34(2): 131-138.

Westberg, J. & Jason, H. 1993. ***Collaborative clinical education : the foundation of effective health care.*** New York.

Wester, F. ***Analyse van kwalitatief onderzoeksmateriaal***. -47. 2004.

Wood, B. P. 2000. Feedback: a key feature of medical training. ***Radiology***, 215(1): 17-19.

Appendix I

Interviewschema AIOS Anesthesiologie

Doel van het interview:
Het in kaart brengen van de percepties van AIOS Anesthesiologie met betrekking tot effectieve feedback verschaft door supervisoren binnen medische OJT (on-the-job training) in het UMCG

Verantwoordelijke instantie:
Wenckebach Instituut & Faculteit economie & bedrijfskunde, HRM & OB, RUG

Opdrachtgever:
Drs. E. Jippes, opleidingsconsulent, Wenckebach Instituut, UMCG

Duur interview:
20 minuten

Context van interviewvragen:
Bij aanvang van het interview wordt aan de te interviewen persoon duidelijk gemaakt dat de antwoorden betrekking moeten hebben op de context 'het ontvangen van feedback van supervisoren binnen de medische OJT setting in het UMCG.'

Gebruik geluidsopname:
Met toestemming van geïnterviewde wordt het interview opgenomen met een voicerecorder. De data zullen vertrouwelijk behandeld worden.

Publicatie resultaten:
Het interview zal uitsluitend gebruikt worden voor dit onderzoek en dit zal als scriptie in verslagvorm verschijnen.

Anonimiteit:
Uitspraken uit dit interview zullen in het verslag niet te herleiden zijn naar persoon.

- **Algemene vraag**

In welk jaar bevindt u zich van de opleiding tot medisch specialist?

- **Vragen m.b.t. 'feedback'**

Wat verstaat u onder feedback? (Stegeman, J. 2008)
Hoe weet u wanneer u feedback ontvangt? (Bing-You, R. et al. 1997)

- **Vragen m.b.t. 'effectieve feedback'[14]**

Wanneer is voor u feedback effectief? (Bing-You, R. G. et al. 1998)
Hoe ziet effectieve feedback er voor u concreet uit? (Hewson, M. G. et al. 1998)

[14] Deze vragen worden begeleidt door een topiclijst (zie appendix III). Het doel van deze interviewvragen is om de geïnterviewde zijn/haar verhaal te laten vertellen en de persoon zelf aan te laten geven wat belangrijke aspecten zijn bij het ontvangen van effectieve feedback en hem/haar daarbij niet te beïnvloeden. De topics op de lijst zijn ingedeeld naar categorieën (structure/ content/ format). Tijdens het interviewen wordt er gezorgd dat iedere categorie aan bod komt zonder specifiek op de onderliggende topics in te gaan (Hutjes, J. M. et al. 1996).

Interviewschema medisch specialist Anesthesiologie

Doel van het interview:
Het in kaart brengen van de percepties van supervisors met betrekking tot het verschaffen van effectieve feedback aan AIOS Anesthesiologie binnen de medische OJT setting in het UMCG

Verantwoordelijke instantie:
Wenckebach Instituut & Faculteit economie & bedrijfskunde, HRM & OB, RUG

Opdrachtgever:
Drs. E. Jippes, opleidingsconsulent, Wenckebach Instituut, UMCG

Duur interview:
20 minuten

Context van interviewvragen:
Bij aanvang van het interview wordt aan de te interviewen persoon duidelijk gemaakt dat de antwoorden betrekking moeten hebben op de context 'het verschaffen van feedback aan aios Anesthesiologie binnen de medische OJT setting in het UMCG.'

Gebruik geluidsopname:
Met toestemming van de geïnterviewde wordt het interview opgenomen met een voicerecorder.

Publicatie resultaten:
Het interview zal uitsluitend gebruikt worden voor dit onderzoek en dit zal als scriptie in verslagvorm verschijnen.

Anonimiteit:
Uitspraken uit dit interview zullen in het verslag niet te herleiden zijn naar persoon.

- **Algemene vragen**

Wat is uw functie binnen het UMCG?
Hoe lang bent u al werkzaam in deze functie?

- **Vragen m.b.t. 'feedback'**

Wat verstaat u onder feedback? (Stegeman, J. 2008)
Wanneer geeft u feedback aan AIOS? (Bing-You, R. et al. 1997)

- **Vragen m.b.t. 'effectieve feedback'** [15]

Wanneer is voor u feedback effectief? (Bing-You, R. G. et al. 1998)
Hoe ziet effectieve feedback er voor u concreet uit? (Hewson, M. G. et al. 1998)

[15] Deze vragen worden begeleidt door een topiclijst (zie appendix III). Het doel van deze interviewvragen is om de geïnterviewde zijn/haar verhaal te laten vertellen en de persoon zelf aan te laten geven wat belangrijke aspecten zijn bij het verschaffen van effectieve feedback en hem/haar daarbij niet te beïnvloeden. De topics op de lijst zijn ingedeeld naar categorieën (structure/ content/ format). Tijdens het interviewen wordt er gezorgd dat iedere categorie aan bod komt zonder specifiek op de onderliggende topics in te gaan (Hutjes, J. M. et al. 1996).

Appendix II

Topic list

- **Structure considerations**

= Considerations made at the beginning of the feedback conversation.
- Appointment scheduled at the mutual convenience
- Climate/ setting
- Goals/ standards

- **Content considerations**

= Considerations made with regard to the content of the feedback conversation.
- Specific
- Focus on changeable behaviour
- Limited
- Objective
- Non-judgemental language
- Timely

- **Format considerations**

= Considerations made with regard to the formation of the feedback conversation.
- Learner's self-critique
- First good points
- Suggestions for improvement
- Reciprocate
- Interpretation check

Appendix III

Verklaring tot toestemming voor deelname aan het onderzoek: "EFFECTIVE FEEDBACK IN MEDICAL ON-THE-JOB TRAINING"

Semigestructureerde interviews onder supervisoren & AIOS Anesthesiologie

---

Respondenteninformatie

Doel van het interview:	Het in kaart brengen van de percepties van supervisors/ AIOS van de afdeling Anesthesiologie met betrekking tot effectieve feedback binnen de medische on-the-job training setting in het UMCG
Verantwoordelijke instantie:	Wenckebach Instituut & Faculteit economie & bedrijfskunde, HRM & OB, RUG
Opdrachtgever:	Drs. E. Jippes, opleidingsconsulent, Wenckebach Instituut, UMCG
Duur interview:	max. 20 minuten
Gebruik geluidsopname:	Het interview wordt opgenomen met een voicerecoreder
Publicatie resultaten:	De verkregen gegevens zullen uitsluitend gebruikt worden voor dit onderzoek en eventuele secundaire analyses
Anonimiteit:	De verkregen gegevens zullen vertrouwelijk worden behandeld Gebruik van uitspraken zullen niet tot de persoon te herleiden zijn

---

Naam onderzoeker: Annesophie Zantinge
Bedrijfskunde, Human Resource Management, RUG
a.e.zantinge@wenckebach.umcg.nl
0612754583

Naam respondent:

Ik, ondergetekende, heb de respondenteninformatie over het onderzoek gelezen en begrepen en geef toestemming voor de deelname aan het onderzoek.

Datum:
Handtekening:

Appendix IV

Korte Praktijk Beoordeling Anesthesiologie

Stand van opleiding:

1e jaar	2e jaar	3e jaar	4e jaar	5e jaar

AIOS: ______________________ **Stage:** ______________

Supervisor: ______________________ **Datum:** ______________

Type patiënt: ______________________________________

Onderwerp KPB: ____________________________________

Beoordeelde competenties:

kies 2 competenties, *geef* cijfer beoordeling; *kruis* niveau complexiteit aan

5 = zeer goed; 4 = goed; 3 = voldoende; 2 = matig; 1 = zwak

Medisch Handelen	Communicatie	Samenwerking	Kennis & wetenschap	Maatschappelijk handelen	Organisatie	Professionaliteit
complexiteit	complexiteit	complexiteit	complexiteit	complexiteit	complexiteit	complexiteit

Wat is er goed? - gezien fase in de opleiding / groei

____

____

____

Wat kan er beter? – suggesties hoe iets beter zou kunnen.

____

____

____

Handtekening AIOS **Handtekening Specialist**

umcg

V 1.2