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# Video training with peer feedback in real-time consultation: acceptability and feasibility in a general-practice setting

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## ABSTRACT

**Objective** Since many years, teaching and training in communication skills are cornerstones in the medical education curriculum. Although video recording in a real-time consultation is expected to positively contribute to the learning process, research on this topic is scarce. This study will focus on the feasibility and acceptability of video recording during real-time patient encounters performed by general practitioner (GP) trainees.

**Method** The primary research question addressed the experiences (defined as feasibility and acceptability) of GP trainees in video-recorded vocational training in a general practice. The second research question addressed the appraisal of this training. The procedure of video-recorded training is developed, refined and validated by the Academic Teaching Practice of Leuven since 1974 (Faculty of Medicine of the University of Leuven). The study is set up as a cross-sectional survey without follow-up. Outcome measures were defined as 'feasibility and acceptability' (experiences of trainees) of the video-recorded training and were approached by a structured questionnaire with the opportunity to add free text comments. The studied sample consisted of all first-phase trainees of the GP Master 2011–2012 at the University of Leuven.

**Results** Almost 70% of the trainees were positive about recording consultations. Nevertheless, over 60% believed that patients felt uncomfortable during the video-recorded encounter. Almost 90% noticed an improvement of own communication skills through the observation and evaluation of. Most students (85%) experienced the logistical issues as major barrier to perform video consultations on a regular base.

**Conclusions** This study lays the foundation stone for further exploration of the video training in real-time consultations. Both students and teachers on the field acknowledge that the power of imaging is underestimated in the training of communication and vocational skills. The development of supportive material and protocols will lower thresholds.

**Practice implications** Time investment for teachers could be tempered by bringing up students to peer tutors and by an accurate scheduling of the video training. The development of supportive material and protocols will lower thresholds. Further research should finally focus on long-term efficacy and efficiency in terms of learning outcomes and on the facilitation of the technical process.

education curriculum. Since communication strategies are based upon theoretical dogmas, these skills are both teachable and trainable.<sup>1,2</sup>

High volumes of literature are dedicated to the outcome of communication and vocational training on competence of students and trainees in contact with patients.<sup>3–4</sup> Most of the medical curricula focus on role play training (both with peers and simulation patient) and assessment with direct feedback. Although video recording in a real-time consultation is expected to positively contribute to the learning and assessment process, research on this topic is scarce.<sup>5–8</sup> Hence, video recording is well studied and accepted in the training of technical and practical skills.<sup>9</sup> Here, the focus of video training rather lies on studying, copying and applying the demonstrated techniques. In vocational training (performance in consultation), the focus lies on the integration of technical, management and communication skills as a complex interaction.

The limited literature on this topic reveals some evidence that video recording positively contributes to the learning process if feedback is provided.<sup>10–12</sup> Students indicated that the observation of the video-recorded encounters taught them how to adjust negative or inappropriate attitudes. They also emphasised the strength of visual feedback in contrast with narrative feedback. One study reported improvement on communication outcomes after the video-supported feedback.<sup>13</sup> On the other hand, several studies highlighted the thresholds of video recording. Indeed, learning by self or peer observation evokes feelings of shame and discomfort.<sup>7,10,14</sup>

Nevertheless, there were no studies found addressing the feasibility and acceptability of video recording in real-time patient encounters. In the Academic Teaching Practice of the University of Leuven, there is a 40-year tradition of video recording in a real-life general-practitioner (GP) setting. In the earlier phases of medical education, students are instructed on the theory framing the use of adequate communication strategies. In the following phases, students are trained by means of role play and simulated consultations under supervision of GP trainers. In the final phase (master year 4), students are trained in realistic encounters under supervision of GP trainers and observed by peers (through monitors). This unique training method combines the practicing of communication strategies with the particular setting of a consultation. During this vocational training, video recording guarantees an immediate and realistic feedback.

Prior to further research on learning outcomes, this study focuses on the feasibility and

## INTRODUCTION

Since many years, teaching and training in communication skills are cornerstones in the medical



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acceptability of video recording during real-time patient encounters performed by GP trainees and on the appraisal of this learning method as part of the curriculum.

## METHOD

### Field study

The primary research question addressed the experiences (defined as feasibility and acceptability) of GP trainees in video-recorded vocational training during their internship in a general practice. The second research question addressed the appraisal of this training as part of the communication skills learning activity.

The study is set up as a cross-sectional survey without follow-up. Outcome measures were defined as 'feasibility and acceptability' (experiences of trainees) of the video-recorded training. The studied sample consisted of all first-phase trainees of the GP Master 2011–2012 at the University of Leuven. Since video-recorded training is a mandatory part of the curriculum, all trainees were included in the study. All trainees were invited by email to participate by completing a web-based questionnaire (see online supplementary appendix 1). There were no exclusion criteria since the target group was strictly defined.

Outcome measures were approached by a structured questionnaire with the opportunity to add free text comments. The survey was composed of 14 items. These items or statements were compiled based upon research and upon own expertise and findings prior to the study. The answers were scored on a 4-point Likert scale: disagree, rather not agree, rather agree, agree. This symmetry avoided regression to the mean. Free text comments were addressed as qualitative data and analysed following the grounded theory of Strauss and Corbin. This technique of labelling (coding) and correlating was used to gain more insight in the results of the quantitative part of the questionnaire.

The procedure of video-recorded training is developed, refined and validated by the Academic Teaching Practice of Leuven since 1974 (Faculty of Medicine of the University of Leuven). During a period of 2 months, trainees receive vocational training under supervision of a GP trainer in this teaching practice. Consultations are conducted in real time, without instructions to patients or simulated circumstances. Practically, one trainee conducts the consultation while a peer trainee and the GP trainer observe the performance via a monitor. After each patient encounter, both trainees switch places and the next patient is called from the waiting-room. An immediate feedback from the observing trainee and the GP is provided in between two encounters. Apart from the narrative feedback after each encounter, a formal assessment of the performance is made by the GP trainer after each consultation block (consisting of 6–8 encounters). The assessment is guided by the Common Ground Form 2007.

In addition to this real-time training and assessment, trainees are instructed to videotape one or more consultations during their internship. Prior to this task, students and trainers receive comprehensive instructions on content and logistical requirements. All recorded encounters are discussed with the GP trainer and a limited group of peers. Discussion (narrative feedback) and assessment are supported by a structured instrument (Common Ground Form). This form is designed and validated in agreement with the required learning outcomes by one of the staff members.<sup>2 15</sup>

### Analysis

The quantitative data collection was initially described by univariate analysis. Subsequently, a factor analysis (using SAS V.9.3)

was performed to find related items and to reduce the number of answers to a manageable dataset. Finally, the returning factors were related to the corresponding, coded data of the qualitative dataset until saturation was achieved (free text comments).

The comments were addressed as qualitative data and analysed using the grounded theory. Four researchers collected and read all comments, coded them according the Grounded Theory and added them to the previously defined categories.

### Ethical committee

The Medical Ethics Committee of KU Leuven University Hospital approved the study as part of the Master Thesis to achieve the title of Master in Medicine. In Belgium, a written informed consent of the study participants is only required when patients are involved.

### Definitions

Communication training is the learning activity addressing the achievement of communication skills. The training starts from a theoretical framework particularly focusing on doctor–patient encounters. Communication strategies are explained and illustrated in theoretical courses and practiced in role play or simulated patient encounters.

Consultation (vocational) training is the training of verbal and non-verbal communication skills applied in the particular setting of daily practice. Performance in this setting requires an adequate integration of communication skills and medical expertise (as defined in the CANMEDS). This training is immediately followed by feedback provided by peers and supervisors.

## RESULTS

### Quantitative data collection: the structured questionnaire

The recruitment and registration period took place from May 18 till June 3 of 2012 (table 1). Of the 323 target students, 162 students completed the questionnaire. Data collection was anonymous and without control group. No demographics were collected since the sample was composed of generation students of 2011–2012 who followed this mandatory learning activity.

Almost 70% of the trainees were positive about recording consultations (item 12: 'positive regarding video consultations'). Nearly 80% of the trainees agreed that direct supervision in patient encounters improved their communications skills (item 1). Of all trainees, 85% declared that their professional attitude and non-verbal communication improved (item 3). Nevertheless, over 60% believed that patients felt uncomfortable during the video-recorded encounter (item 4). In contrast, 66% of the trainees mentioned that they did not experience of any loss authenticity or spontaneity (item 6). The majority of students (64%) did not rate evaluation by peers as unpleasant (item 8). Almost 90% noticed an improvement of own communication skills through the observation and evaluation of peers (item 10). Finally, slightly less than half of the students indicated that video recording of consultations were to be used more often as a training method (item 13). Although highly emphasised, half of the trainees indicated that applied the instructed communication strategies in the daily patient encounters (item 5).

Most students (85%) experienced the logistical issues as major barrier to perform video consultations on a regular base (item 7). Half of the trainees also decided that video-recorded consultations were far removed from reality (item 11).

In the last item (item 14), trainees were asked to appoint the most effective strategy to learn and achieve adequate communication strategies. Over 30% of the trainees believed that

**Table 1** Questionnaire responses

Item	Totally agree (%)	Agree (%)	Disagree (%)	Totally disagree (%)	
Patient encounters	22	57	15	6	
Verbal	16	57	21	6	
Non-verbal	31	54	11	4	
Uncomfortable for the patient	8	30	59	3	
Daily practice	6	50	34	10	
Authenticity	30	36	32	2	
Impractical	38	47	13	2	
Fellow student	8	28	56	8	
Evaluation improves	9	77	12	2	
Evaluating improves	10	71	17	2	
Reality	16	35	48	1	
Positive	9	59	23	9	
Frequent	7	40	39	14	
	<b>Theory</b>	<b>Observing internship</b>	<b>Role play</b>	<b>Consultation with observer</b>	<b>Video training</b>
Effective	6	5	33	43	13

simulated role playing was the most accurate way to practice communications skills. Respectively, 43% and 13% appointed consultations with direct observation and video training as the most effective strategies.

In a factor analysis, the contribution of underlying explaining factors was investigated (table 2). Based on the number of items (14) in the questionnaire, a first analysis model with four and five factors was constructed. The model appeared unreliable. Subsequently, the number of explaining factors was reduced until a reliable model turned up. Only the two-factor model remained stable and yielded two statistically significant and meaningful factors. Items 1, 3, 5, 8, 12 and 13 were explained by a factor with an eigenvalue of 6, 4. Items 9, 10 and 12 were explained by a factor with an eigenvalue of 1, 4. The other items were not explained by any other factor. The first underlying factor was defined as 'the added value of video training'. The second factor linked the items addressing the impact of peer and self-feedback and the contribution of positive feelings to video training.

**Table 2** Factor analyses of the questionnaire

Rotated factor pattern		
Item	Factor 1	Factor 2
1	0.87	0.25
2	0.76	0.2
3	0.66	0.28
4	-0.62	0.08
5	0.67	0.11
6	-0.61	0.31
7	-0.54	-0.12
8	0.04	-0.78
9	0.20	0.82
10	0.50	0.53
11	-0.72	-0.23
12	0.84	0.30
13	0.79	0.25
14	-0.26	-0.42

### Qualitative data collection: the free field comments

A free text field was added as a supplement to the questionnaire. Forty two students provided a comment. These comments were analysed and labelled according to the principles of the Grounded Theory of Strauss and Corbin. The researchers then constructed eight labels related to the common denominators in the comments.

The first label was defined as 'good method' and included all comments (n=27) appointing to 'video consultations' as a fair learning method: useful, instructive, interesting, good tool, learned a lot. The second label was defined as 'self-observation'. Eight students considered self-observation as valuable and appreciated. The third label was defined as 'unrealistic' as this particular expression was used by 15 students: video consultations are staged, unrealistic, not spontaneous and unnatural. The fourth label was defined as 'uncomfortable' (n=15 comments): stress, nervous, uncomfortable, annoying, bothersome. Label number five was defined as 'impractical' (n=12 comments): difficult to accomplish, not feasible in daily practice, hassle, 'misery', technical problems. The sixth label was defined as 'direct observation'. Seven students proclaimed that they learned most from direct supervision immediately followed by feedback. Label number seven was named 'not more video consultations'. Five students indicated that the imposed maximum number of video consultations (three) sufficed. The last label was 'practice experience': the most meaningful learning moments were those of trial and error in daily practice (n=3 comments).

### DISCUSSION

In this descriptive cross-sectional study, the experiences (defined as feasibility and acceptability) of video training in real-time patient encounters were investigated. Video-recorded training is considered as a valuable but poorly appreciated learning method. The majority of students experienced a beneficial effect on their verbal communication skills and professional attitude after video consultation with peer feedback. Hence, these positive attributions were largely countered by many logistical and mental barriers and by prejudices.

First, students attached great value to video-recorded consultation training. They believed their communication skills and

attitudes were positively modified by self and peer observation. In contrast, a considerable number of students judged that simulated role playing was most effective to improve communication skills. Direct supervision by a GP trainer during consultation was also highly appreciated in terms of self-determined learning outcome. These apparent contradictions could be due to the initial stress that video-recorded training induces in trainees. Once students feel more experienced and more confident in patient encounters, they manage to ignore the camera. Therefore, the concept of video recording should not be planned in early phases of the medical curriculum. In one other study, it was found that in particular the first video recording was an event, while students' stress gradually decreased over time.<sup>7</sup> An introductory session with clear instructions on how the sessions are worked out and what is expected will meet the concerns of the trainees.

Although trainees declared that they did not need (want) more video trainings, only half of them effectively used the communication strategies in daily practice. Assuming that the trainees insufficiently master the communication strategies, they will likely benefit from more video training.<sup>11 14 16</sup> The trainees also indicated that video training is a 'good training method' because 'you observe yourself'. But since they declared that video training is a stressful event, not pleasant and even 'misery', they will probably not increase the number of sessions on a voluntary basis. A few students noted that they had learned most from trial and error in patient encounters. Without observation and feedback, this might be an inappropriate strategy in the learning process.<sup>17 18</sup> A self-reflection report at the end of the training session convinces trainees of the benefits of video recording as shown by the positive appreciation for the feedback report.

The setting of the video training was also a subject of discussion. Trainees noticed that the camera interfered with the reality and authenticity of the patient–doctor encounter. They felt uncomfortable and stressed due to the presence of the camera and assumed that patients felt the same way. Moreover, trainees actually believed that they behaved differently. Other research demonstrated that students initially were suspicious and dismissive of video training.<sup>7</sup> In contrast, trainees in our study attached a great value to the direct observations. This contradiction implies that trainees acknowledge their lack of competence in communication skills but that they are incapable to appoint the shortcomings. In other words, if the added value of video recording is not acknowledged, this is mainly caused by a lack of recognition of images of themselves.<sup>5 19</sup> More and intensive video training supported by self-reflection will make students more familiar with the training strategy and add to the acceptability of it.

Finally, many technical and logistical barriers were identified as limiting factors in the use of video recording in daily practice. The procedure and implementation of video recording require a thorough preparation. Therefore, a comprehensive protocol or 'user guide' is essential. Hereby, trainees, GP trainers and other practice staff are well informed about the working methods. In this study, the purchase and installation of high-quality recording devices seemed problematic. In particular, the sound recordings did not meet the standard requirements. Above all, video recording is a time-consuming activity. Appointments should be carefully scheduled and interrupted by feedback breaks. Patients are not prepared or selected in advance but they need to give their spoken consent in front of the camera. Although theoretically all reasons for encounter are appropriate for video recording, patients will not always agree to take part in the activity.

This study also has important limitations. It was performed in a cross-sectional design without control group or follow-up.

Since data were collected anonymously, a comparison between responders and non-responders on the survey was unrealisable. Second, the impact over time of the training on the students' competences and learning outcomes was not processed. Third, this was only a descriptive study prior to further research related to learning and assessment outcome. The strength of the study was certainly the high response rate (over 50%) in a representative sample of trainees (following this mandatory learning activity). Second, the answers to the structured questionnaire were in full accordance with the 'free text comments'. This finding supports the validity and consistency of the questionnaire. Third, the study was conducted and supervised by a very experienced research team in this topic. The principal investigator is a GP in the ATP of Leuven where video recording is an integral part of GP training for more than 40 years.

## CONCLUSION

This study lays the foundation stone for further exploration of the video training in real-time consultations. In the contemporary medical curricula, the offer of communication training implies a considerable time investment. The importance of these learning activities in terms of learning outcomes and assessment processes is commonly accepted. Strikingly, video recording in real time with feedback of peers and supervisor is not addressed in research. So far, only role play and simulated training were extensively studied. Nevertheless, both students and teachers on the field acknowledge that the power of imaging is underestimated in the training of communication and vocational skills.

Time investment for teachers could be tempered by bringing up students to peer tutors and by an accurate scheduling of the video training. The underuse of video recording in medical curricula is mainly caused by prejudices and mental and technical objections. The development of supportive material and protocols will lower thresholds. Further research should finally focus on long-term efficacy and efficiency in terms of learning outcomes and on the facilitation of the technical process.

## Main messages

- ▶ Video training with immediate feedback in real time is hardly studied.
- ▶ Time investment for teachers could be tempered by bringing up students to peer tutors and by an accurate scheduling of the video training.
- ▶ The underuse of video recording is mainly caused by prejudices, suspicion and technical objections.

## Current research questions

- ▶ Protocols and guidelines for peer feedback in video training should be developed and studied.
- ▶ The development of supportive teaching material will lower thresholds and deserves further attention in research.
- ▶ Further research should focus on long-term efficacy and efficiency in terms of learning outcomes and on the facilitation of the technical process.

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**Competing interests** None declared.

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