PEC Innovation 2 (2023) 100158

Contents lists available at ScienceDirect

PEC Innovation

journal homepage: www.elsevier.com/locate/pecinn

Integrating medical and practical skills in communication skills training: Do students feel it supports them with transfer from classroom to practice?

Ellemieke Rasenberg *, Guus Brand, Evelyn van Weel-Baumgarten

Radboud University Nijmegen Medical Center, the Netherlands

ARTICLE INFO

Keywords:
Clinical communication skills training
Transfer
Clinical reasoning
Undergraduate medical students
Curriculum development
Integration communication and medical skills

ABSTRACT

Objective: To describe innovations in a clinical communication skills training (CCST) program, aimed at facilitating transfer of communication skills from classroom to clinical practice and report student's evaluations regarding this program.
Methods: To facilitate transfer, we integrated CCS with medical and practical skills, and we developed simulation sessions closely resembling clinical practice in case-history's, length of consultation, and patient-population. Feedback was given on communication skills and medical knowledge and skills. Student's opinions about whether these elements were helpful, were evaluated using a questionnaire.
Results: Responses of 144 students were analyzed. The majority of the respondents agreed that this CCST program helped them with transfer of CCS from classroom to clinical practice, as did the feedback on medical content and communication skills in the same session.
Conclusion: Students indicate that simulations resembling clinical practice and feedback on both CST and medical content facilitate the transfer of their skills to clinical practice.
Innovation: This CCST program is innovative because it integrates medical and practical skills, with elements aiming to create an educational environment resembling clinical practice as closely as possible in order to facilitate transfer to clinical practice.

1. Introduction

Effective patient centred communication is essential to achieve optimal health outcomes in patients [1-3]. It is possible to train students in these skills, and methods using experiential learning are most effective [4-6] for teaching of clinical communication. Communication is a formal component of many medical curricula and recognized as a core competency by accrediting bodies and medical education organizations [7,8]. Including clinicians in formal clinical communication skills training (CCST) is important because they are powerful role models and students appreciate their feedback [9,10]. In addition to formal training of communication skills in early career-stages, it has also been demonstrated that is necessary to continue this training in the workplace because otherwise communication skills deteriorate [11,12].

Skills can be taught effectively in classroom settings, however this does not necessarily mean that students can still perform the skills in a different context. Therefore, it is important that skills acquired during training are effectively transferred from classroom to practice. Transfer is achieved when learned skills are generalized to the workplace context, and maintained over a period of time [13]. Transfer of clinical communication skills is difficult, because in many undergraduate medical curricula, classroom teaching lacks elements to facilitate transfer [14-19].

Kurtz et al. [20] state that unless clinical communication skills are integrated with other clinical skills such as history taking, physical examination, and clinical reasoning, learners are unlikely to apply the communication skills they have learned in the classroom. Aper et al. [21] describe that during their clerkships undergraduate students feel confident about their communication skills, but experienced a large gap with regard to their clinical thinking. They advise integrated training (clinical reasoning and communication) early in the curriculum, which is supported by others [22-24]. Van den Eertwegh et al. [25] showed that for an effective transfer learners need to reflect on their own communication challenges and performance under guidance and with neutral and supportive feedback.

It is important to note that in transfer, near and far transfer can be distinguished. Near transfer means that a skill can be performed in classroom and everyday practice with little or no difference between the educational and the everyday practice setting. When significant changes exist between these two settings, far transfer is needed [26]. An example of near transfer is talking to a patient with the same origin, with whom one shares the same language and cultural values. This skill is the same in educational and

* Corresponding author at: Radboud University Nijmegen Medical Center, Department of Primary and Community Care, Geert Grooteplein Noord 21, 6525EZ Nijmegen, the Netherlands.
E-mail addresses: Ellemieke.Rasenberg@Radboudumc.nl (E. Rasenberg), Guus.Brand@Radboudumc.nl (G. Brand), Evelyn.VanWeel-Baumgarten@Radboudumc.nl (E. van Weel-Baumgarten).

http://dx.doi.org/10.1016/j.pecinn.2023.100158
Received 26 August 2022; Received in revised form 21 April 2023; Accepted 23 April 2023
Available online xxxx

real practice setting. An example of far transfer is when this patient is of a different origin, speaks a different language and has different cultural values. In this situation, the skills learned in the classroom need to be tailored and changed to fit this particular situation first before they can be applied in clinical practice.

There are several factors that influence the transfer of learned skills into practice: learner characteristics, intervention design and work environment [27]. This publication focuses on 2 elements of the intervention design; content relevance and practice & feedback.

This publication describes in a detailed way, how we tried to improve the content relevance of our CCST program, in order to improve transfer of skills. Because the students' perceived relevance of the content of the training is an important factor which predicts successful transfer [26,28], as a first step we evaluated students experiences with these added elements to assess if they thought it helped them to feel better prepared for clinical practice.

1.1. Description of the curriculum

The medical curriculum of the Radboudumc has an important focus on CCST. This is a longitudinal program throughout year 1 - 6 in which students practice both communication and consultation skills at the same time. For a detailed description of the initial CCST program, see Van Weel-Baumgarten et al. [29]. In 2015 the Bachelor was restructured with, for communication, more exercises for practicing of separate skills in the earlier years, and more self-directed learning as a guiding principle. Additionally, this opportunity was used to further develop a comprehensive CCST educational program which integrates communication skills with medical content and skills.

1.1.1. Bachelor

To understand the background knowledge and skills of students starting the master, in which they do their clerkships, we provide a short description of the CCST program during the bachelor. Students start learning clinical communication skills from the first day of medical school. This is mainly accomplished through small group sessions, using the fishbowl method, with and without simulated patients (SP), and sessions with a carousel model with role play by SP. The fishbowl method is used during group sessions in which one student practices in front of a group of peers. The other students observe and provide feedback [30]. During the working format "Carousel Model with role simulation", students are placed in small groups with two or three peers and a teacher. All students take a turn in practicing a full consultation with an SP. Each student practices with another SP playing a new role [31]. In the beginning the focus is on specific communication skills and the use of consultation models such as the biopsychosocial and the Calgary Cambridge model. Integration with the medical content is achieved through the use of patient case histories that fit with the medical topics covered in the same phase of training. Each following session reinforces acquired skills and adds new skills increasing the level of complexity. Table 1 gives an overview of which specific skills are taught in the Bachelor and when.

1.1.2. Master

The Master comprises three years of clinical education organized into episodes. Each episode focuses on a different specialty, in hospital as well as in a primary care setting. Each episode starts with a one to four week period of preparatory classroom teaching, in order to prepare students for these clerkships. They attend courses in which they acquire specific knowledge and skills to best complete the clerkship that follows. This can include learning specific disease states, the use of diagnostic tools, scientific education, and knowledge about pharmacotherapy. In addition, they have dedicated time to prepare through self-study. CCST is embedded in every preparatory period of the episodes, except for episode 6. In this episode there is no communication skills training for logistical reasons, as this period is too short to organize CCST. CCST is part of a longitudinal learning trajectory that runs through these episodes and largely uses experiential teaching methods with SP. The preparatory period is followed by one or more clerkships in which students are involved in patient care, and are expected to make observations and learn from practice. The clerkship is concluded in the classroom with a week of reflection sessions about experiences during the clerkship. Some of the sessions belonging to the CCST program take place in the closing week (fig 1).

Table 1
Overview of specific skills and when they are taught in the Bachelor.

Year	Communications skills/topics/specific patient groups
1	• General communications skills (active listening, responding to cues, reflecting on feelings, showing empathy) • Calgary Cambridge Model, phase 1 (initiating the session) and 2 (gathering information).
2	• Calgary Cambridge Model; phase 1, 2 and 4 (explanation and planning, with extra attention for building a relationship and providing structure) • History taking with a caregiver, family member, relative or significant other about a patient who is not present • Motivational interviewing
3	• Communication with the elderly • Prescribing medication; the six-step model • Workshop with free subject-choice, students bring their own learning objectives. • Focus on developing one's own communication style • Remote video consultation

Concerning the CCST program, in the preparatory period students practice entire consultations, not just separate communication skills. In concordance with "just in time learning" and the idea of near transfer, the focus of these consultations is on the context of the upcoming clerkship, with specific problems, patient groups and consultation types similar to those that students will encounter. To enhance the credibility, when choosing the SP for particular teaching, we pay attention to the closest resemblance possible to the patient that has to be played. Adolescents are portrayed by young SP aged between 14 and 16, for SP playing roles of elderly people in the context of an outpatient geriatrics clinic we use SP aged 70-86, and roles of patients with mild intellectual disabilities are portrayed by people who actually have a mild intellectual disability. They are all extensively trained in the role they play. During CCST, students are also required to make a substantiated diagnosis, inform patients and make treatment plans, putting this into practice immediately during sessions with simulated patients. The specific episodes, their corresponding clerkships, content and the CCST practiced in these clerkships, are further specified in Table 2.

2. Method

The aim of this study was to describe innovations in a CCST program that facilitates transfer from classroom to clinical practice, and to report evaluations from students.

2.1. Innovations

In our longitudinal CCST program, several efforts have been made to bridge the gap between classroom and clinical practice. With the aim of bringing together various clinical skills in education and creating a simulation setting as realistic as possible in order to achieve good content relevance, among others, 3 outpatient clinics have been introduced or adapted in our curriculum. The following clinical skills were brought together: clinical reasoning, physical examination, history taking, communication skills, and clinical procedures. In addition, a mini-course on Pharmacotherapy & Communication has been added at several moments in Bachelor and Master with the aim to add a focus on prescribing medication during CCST. Furthermore, a workshop about effective and respectful use of the computer during consultations was added at the beginning of the Master. Also, to achieve good content relevance during simulation, we created realistic length of consultations, realistic case histories, a relevant patient population, and what we will be referring to in this article as 'recurring families'. The latter was added to allow students to practice in

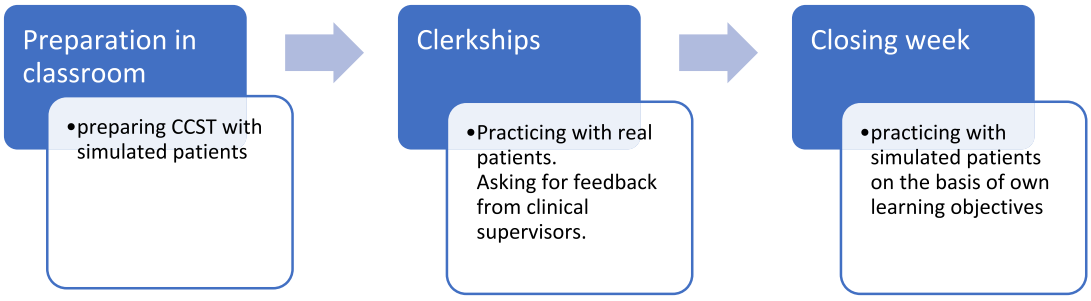

Fig 1. CCST during episodes.

the context of family medicine, where continuity of care and the impact of illness and health on families is an important issue. This has been introduced in episode 7 ("primary health care") of the Master only, because in this episode continuity of care is the most obvious. More detail can be found in the section 'description of the curriculum'. Finally, students do not only receive feedback on their communication skills in these sessions, but also on the other skills, such as clinical reasoning and physical examination. Table 3 shows all elements facilitating transfer in our CCST program. In Supplement 1 more information is provided about the three clinics implemented in our CCST program. More detailed information can be found about the content of these sessions and the way content relevance was pursued, by integrating several elements which facilitate transfer.

2.2. Study population

For this study we included students who had just finished episodes 3 (at the end of year 1), 4 (at the beginning of year 2) and 7 (at the end of year 2) of the Master of the Radboudumc medical school. We decided to include students from episode 3 onward, because at that point they had been introduced to all the elements we use to improve transfer. We excluded students of episode 5 because the workshops they followed were more focused on dealing with difficult situations in general and less on consultations skills (Table 2). Episode 6 does not contain any CCST.

All students following these episodes between March and July 2021 were invited to participate. In March we invited students by posting an announcement on the digital learning environment. Because the response rate was low and we discovered a technical glitch in our online survey, we invited students by mail beginning in May, after the glitch was fixed.

2.3. Evaluation

In the evaluation we focused on the elements we introduced to create more content relevance and on receiving feedback both on communication skills and medical content. Student opinions were gathered using an adjusted version of the "Student perception questionnaire" developed by Van Weel-Baumgarten et al. [29]. This original questionnaire consisted of six statements. Students were asked for their level of agreement to these statements on a 5-point Likert scale. The original six statements have been altered to fit the adjustments in the CCST program and the format of this study. Five questions were added because of the changes in the curriculum, such as the introduction of new transfer elements. Four of these statements were aimed at students from all participating episodes of the Master, the fifth was specifically targeted participants in episode 7. The statements can be roughly divided into the themes as described in the introduction of this article (creating good content relevance, a simulated setting closely resembling clinical practice, realistic length of the consultation, relevant patient population and case histories; and feedback on communication and medical content by medical professionals, behavioral scientists, peers and the SP, to adhere to the principle of 360 degree feedback). A face validity check was performed with five experienced teachers and faculty members at the Radboudumc, resulting in minor adjustments to the questionnaire. Also, the questionnaire was first piloted with one student group (n = 30) to assess questionnaire feasibility.

For all statements of the questionnaire, we refer to the results section of this article.

All data was entered in IBM SPSS Statistics. We chose to perform a Levene's test to determine if there was equality of variances for the variables of the three groups of students (episode 3, 4 and 7). Depending on the results, a choice would have to be made between the Kruskal Wallis or ANOVA, for testing whether the samples of the three groups of students originated from the same distribution

3. Results

A total of 472 students were approached. 156 students from episode 3, 150 from episode 4 and 166 from episode 7. Participants of all three eligible episodes of the Master were included: 32 participants from episode 3, 38 from episode 4 and 74 from episode 7. The response rates were respectively 21%, 25% and 45%. Overall, the response rate was 31%. For an overview of all participant characteristics, see Table 4.

The Levene's test showed that for four out of ten statements there was no equality of variances for the variables in the three groups of students. Therefore we decided to use the Kruskal Wallis, a non-parametric ANOVA, for testing whether the samples of the three groups of students originate from the same distribution. This showed that only for statement 6, 'Practicing consultations with a specific patient group, similar to the one I will encounter in the up-coming clerkship, helps me with transfer to clinical practice', the null hypothesis that the medians of all groups are equal, had to be rejected. (Supplement 2)

The results of the questionnaire are presented in Tables 5, 6a, 6b and 7.

Table 5 addresses the first statement. Tables 6a, 6b and 7 are represented according to the themes stated earlier in this article. We have divided the responses into 3 categories to increase readability. More detailed information about the results can be found in Supplement 2.

The results of the responses to statement 6 are represented in a separate (Table 6b), because the means of the separate groups were not equal.

4. Discussion and conclusion

4.1. Discussion

Most students appreciated practicing with consultations in which communication and medical content were integrated, consultations with realistic consultation length, consultations with histories and patients similar to the cases of the upcoming clerkships and variation in consultations types, problems and patient types. All these elements, added or adjusted to facilitate transfer appeal to students, and made them feel better prepared. Their perceptions were more diverse regarding experienced time pressure, and the value of encountering different members of a family during CCST before the clerkships in family medicine.

The majority of students thought that a consultation duration similar to clinical practice helps with transfer. However, about 40% of the students did not seem to find it helpful to experience a time constraint in the process.

Table 2
Description of CCST in the Master.

Preparing for clerkships	Communications skills/topics/specific patient groups	Working format	Teachers	Duration per session (hrs)
1. Internal Medicine	• Recognizing and managing personal boundaries and professional behaviour • History taking, with attention for context information • Workshop with free subject-choice, students bring their own learning objectives. • Workshop 'using the computer during a consultation' in order to report their findings during history taking,	• Small group session, 7 students, 1 actor (Dramatic Role Play (DRP)[2]) • Individual simulated patient encounter[3] • Small group session, 5 students, 1 SP (Fishbowl (FB)[4]) • Small group session with roleplay	• 1 GP or 1 Psychologist • 1 GP or 1 Psychologist • 1 GP or 1 Psychologist • 1 GP	• 2:30 • 2:30 • 2:00 • 1:30
2. Neurology and Psychiatry	• History taking with psychiatric patients and a relative or caregiver, migrants and patients with a mild intellectual disability • Workshop with free subject-choice, students bring their own learning objectives.	• Carousel model with role simulation[5](2 roles by SP, 1 role by SP with a mild intellectual disability) • Small group session, 5 students, 1 SP (FB)	• 1 Psychologist, 1 Psychiatrist, 1 Intellectual Disability Physician • 1 GP or 1 Psychologist	• 3:30 • 2:00
3. Surgery	• Breaking bad news (surgical setting; minor and major bad news) • Surgical clinic with integration of knowledge, technical and clinical communication skills[1] • Pharmacotherapy & Communication	• Carousel Model with role simulations, 4 roles by SP • Carousel Model with role simulation, 4 roles by SP • Group session with mini-lecture, discussion and roleplay	• 2 Surgeons and 2 Psychologists • 2 Surgeons and 2 Psychologists • Pharmacotherapist and GP	• 3:30 • 3:30 • 1:30
4. Paediatrics	• History taking with a parent of a sick child • Clinic with particular paediatric consultations. This clinic includes: History taking with adolescents; follow-up and difficult consultations (prevention, history taking with a young adolescent and her mother and shared decision making on contraceptives) [1]	• Carousel Model with role simulation, 4 roles by SP • Carousel model with role simulation, 4 roles by SP (adolescents and adults as their parents)	• 2 Paediatricians and 1 GP or Youth healthcare Physician • 2 Paediatricians, 1 GP and 3 Psychologists	• 3:15 • 3:45
5. Gynecology and Emergency care	• Workshop with free subject choice. CCST not only based on consultations with patients, but also on communication with supervisors and other medical professionals.	• Small group session, 10 students, 1 actor (DRP)	• 1 GP or 1 Psychologist	• 2:00 hrs
6. Dermatology and Ear, Nose Throat surgery (ENT)	• No communication skills training for logistical reasons, this period is too short to organize CCST			
7. Primary Healthcare	• Difficult consultations: taking a sexual history, explanation and planning: treatment choices, negotiating with demanding patients, motivational interviewing. • Communication with and about the elderly • Consultation about sexual assault and domestic violence • Advance Care Planning • Remote consultations • Practicing consultations in the role of an occupational health physician, insurance doctor or addiction medicine physician • Simulated clinic with 6 successive patients, integrating knowledge, medical and CC skills[1] • Workshop with free subject-choice, students bring their own learning objectives. • Practicing the principle of continuity of care using a variety of consultations with simulated patients from recurring families	• Carousel Model with role simulation, 4 roles by SP • Small Group sessions with 15 students, 1 SP (FB) • Small Group sessions, 10 students, 1 SP (FB) • Carousel Model, with Role play, 3 roles by SP • Remote consultation in digital environment, Carousel Model with role simulation, 4 roles by SP • Carousel model with role simulation, 4 roles by SP • Carousel model with role play, 6 roles by SP • Small Group session, 5 students, 1 SP (FB) • Runs through all the sessions mentioned above	• 3 GP and 2 psychologists • 1 Geriatrician or 1 Psychologist • 1 GP • 3 Psychologists and 3 GP • 2 GP • 1 insurance Doctor, 1 Occupational Health Physician and 1 Addiction Medicine Physician • 3 GP • 1 GP or 1 Psychologist	• 3:45 • 1:15 • 1:00 • 3:30 • 3:30 • 2:45 • 4:00 • 2:00

[1] Simulated clinic: More detailed information with logistics and patient vignettes is provided in Supplement 1.
[2] Dramatic Role Play: A working format used to practice dealing with transgressive or aggressive behavior. Usually an actor is used to play the role. The actor matches his reactions to the student's interventions [31].
[3] Individual simulated patient encounter: Students practice consultations with an SP. These consultations are being vide-recorded. Subsequently students watch their recording and ask for feedback on particular parts of their consultation, in small group sessions with peers and a teacher [31].
[4] Fishbowl method: Group sessions in which one student practices in front of a group peers. The other students observe and provide feedback [30].
[5] Carousel Model with role simulation. Students are placed in small groups with two or three peers and a teacher. All students have a turn in practicing a full consultation with an SP. Each students practices with another SP playing a new role [31].

In clinical practice, there is often time pressure in consultations. Students might not feel confident enough for that duration even though they appreciate the idea. The opinion about dealing with recurring families in clinical communication skills training was not undividedly positive. In the preparation period of episode 7, all classes are based on the cases of 4 families. During a period of 4 weeks, the family members are visiting the student-doctor with new or evolving problems and questions. In this way the students are exposed to the reality of primary healthcare. Students

Table 3
Elements implemented in CCST to facilitate transfer.

Content relevance
Clinicians involved in writing the patient vignettes
Integration communication skills & clinical reasoning*
Integration communication skills & physical examination*
Integration communication skills & performing medical procedures*
Integration communication skills & pharmacotherapeutic knowledge**
Integration communication skills & reporting data from medical history taking in a simulated electronic patient record**
Feedback on all performed skills (communication/knowledge/physical examination/performing medical procedures)*
SPs resembling the patients as much as possible in terms of gender and age
SPs in episode 7 are conceptual relatives of each other**
Duration of consultations resemble actual practice
Settings (out-patient clinic, in-patient clinic, ER) resemble actual practice as much as possible
Other:
Trained clinicians involved in providing feedback
CCST uses patient vignettes matching the content of the clerkships which follow after the training (just-in-time learning)

* Improved elements.
** Newly added elements.

Table 4
Participant characteristics.

Characteristic	Grouped (n = 144)	Episode 3 (n = 32)	Episode 4 (n = 38)	Episode 7 (n = 74)
Gender - no. (%)				
Male	37 (25,6)	9 (27,3)	8 (21,6)	20 (27,0)
Female	106 (73,6)	22 (69,7)	30 (78,4)	54 (73,0)
Other	1 (0,7)	1 (3,0)	0 (0,0)	0 (0,0)
Age - years				
Mean	24	23	24	24,5
Range	22-31	22-25	22-31	23-29

Table 5
Statement 1.

1	Statement	Agree	Neutral	Disagree
	Practicing consultations in which communication and medical content are integrated helps me transfer to clinical practice better than when I would practice these two aspects separately.	131 (91%)	11 (7,6%)	2 (1,4%)

Table 6b
Theme 1. The simulated setting during CCST closely resembling clinical practice.

Groups	Episode	Agree	Neutral	Disagree
Realistic patient population (n = 144)	3	31 (94%)	1 (3%)	1 (3%)
	4	36 (97,3%)	1 (2,7%)	
	7	60 (81,1%)	10 (13,5%)	4 (5,4%)
	Total	127 (88,2%)	12 (8,3%)	5 (3,5%)

Statement 6: Practicing consultations with a specific patient group, similar to the one I will encounter in the up-coming clerkship, helps me with transfer to clinical practice.

were mixed in their opinions about the way in which this helped them to prepare for clinical practice. This might be due to the fact that they are not yet familiar with the setting of primary healthcare, in which multiple family members might show up in practice and that might have led to some hesitance.

The statement 'Practicing with a variety of consultation types, problems and patient types in one consultation is difficult for me'(9) was also more disputed. The study population was more divided on this statement than on most other statements. This might be due to the fact that the wording of a statement has an effect on the results, as illustrated by Holleman et al. [32]. This indicates that the sudden shift of positive formulations of statements to a negative formulation may have impacted the results. It is possible that the same effect is present in the replies for statement 3. Furthermore, though students might find it more difficult to practice with a variety of consultation types, patient types and problems, this does not necessarily mean that it could not help them to make the transfer more easily.

Regarding the statement; 'Practicing consultations with a specific patient group, similar to the one I will encounter in the up-coming clerkship, helps me with transfer to clinical practice' (6), the means of the groups of students were not comparable. However, all students felt very positive about this statement. Students of episode 4, who had just practiced with "real" adolescents, SP aged between 14–16 years, were most positive. It is the first time students practice with such young simulated patients, which makes their enthusiasm palpable.

The second theme concerned feedback on both communication and medical content during CCST. Most students agreed that they would like to receive feedback on both elements in the session. The integration of medical content into practice consultations as implemented in the CCST, seemed to help transfer their skills to clinical practice, according to the students. This is in line with other studies, which have also shown circumstantial evidence to prove this point. Maggio et al. [33] have done similar research on the transfer of evidence based medicine (EBM) skills. They concluded that it is recommended to integrate training of EBM skills with

Table 6a
Theme 1. The simulated setting during CCST closely resembling clinical practice.

Groups	#	Statements	Agree	Neutral	Disagree
Realistic consultation length (n = 144)	2	Practicing consultations with a duration similar to those in clinical practice helps me with transfer to clinical practice.	123 (85,4%)	15 (10,4%)	6 (4,2%)
	3	When preparing for clinical practice, it helps me not to feel time pressure when practicing consultations.	48 (33,3%)	38 (26,4%)	58 (40,3%)
Realistic case histories (n = 144)	7	Practicing consultations with problems similar to the ones I will encounter in the up-coming clerkship, helps me with transfer to clinical practice.	138 (95,8%)	5 (3,5%)	1 (0,7%)
Variation in consultation types, problems and patient types (n = 144)	8	Practicing consultations with a variety of consultation types, problems and patient types helps me prepare for clinical practice.	135 (93,7%)	7 (4,9%)	2 (1,4%)
	9	Practicing with a variety of types of consultations, problems and patients in the same consultation is difficult for me.	38 (26,4%)	38 (26,4%)	68 (47,2%)
Overall realism of consultations (n = 143)*	10	In my opinion, the practice consultations resemble reality well enough to prepare me well for clinical practice.	108 (75,5%)	17 (11,9%)	18 (12,6%)
Recurring families (n = 74)**	11	The fact that, in practice sessions, I encounter patients and their corresponding families repeatedly in both clinical and communication education helps me with preparing for clinical practice.	40 (54,1%)	20 (27%)	14 (18,9%)

* One answer missing.
** Statement 11 was answered only by participants of episode 7 as they were the only ones who had worked with the recurring families (see Table 2).

Table 7
Theme 2. Receiving 360° feedback on both communication and medical content.

#	Statement	Agree	Neutral	Disagree
4	When preparing for clinical practice it is important for me that I receive feedback on communication and medical content after each exercise. (n = 144)	121 (84%)	10 (7%)	13 (9%)
5	I would rather receive feedback on communication and medical content in two separate classes. (n = 144)	22 (15,3%)	27 18,8%)	95 (65,9%)

clinical practice instead of offering it separately in order to improve transfer of EBM skills to clinical practice. Brown [34] posed that more effort is required to further develop and integrate CCST in professional and clinical practice of medical students. Furthermore, Burke & Hutchins [27] concluded that content relevance, which can be achieved by integrating clinical practice into CCST, is important to facilitate transfer of skills. Rollnick, Kinnersley & Butler [35], who implemented a CCST program for general practitioners in which the participants submitted their own case histories to practice with came to the same conclusion.

4.2. Innovation

This article gives a description of how a longitudinal integrated CCST program for medical students might be given shape. We describe various ways of implementing two key factors in a CCST program that promote transfer from classroom to clinical practice: creating a simulated setting as similar as possible to the real practice setting and providing feedback on clinical communication skills as well as medical content and skills. Examples of integrated skills are physical examination, clinical reasoning, performing medical skills such as suturing, prescribing medication during a consultation and using a computer in order to report findings during history taking. Integrating various medical skills into a CCST and receiving feedback on all involved skills, not only during one workshop but systematically in a longitudinal program, has to our knowledge, not previously been described in literature.

When developing such a curriculum, one might start with setting the learning objectives and then choosing the working formats. The choice for specific working formats will also depend on available budget, allocated time in the curriculum, and other educational resources such as teachers and simulated patients [30]. Involvement of clinicians is essential, both in developing training content and providing feedback. They can ensure the integration of medical content and communication into teaching and also provide feedback on both elements. The challenge is to involve enough clinicians with expertise on both medical content and communication skills.

4.3. Strengths and limitations

A major strength of this study is that it shows the student opinions about the program and at the same time gives a more detailed insight in the method of CCST at the Radboudumc, providing readers with a framework to implement this type of training themselves. As far as we know there is still little research on the subject of how clinical practice can be integrated into CCST to improve transfer of communication skills. Therefore, as an example for others we added the extensive description of the curriculum.

The relatively small study population to which the questionnaire was sent, limits the implications of this study. However, the demographics of our study population are comparable to the general population of medical students in the Netherlands [36]. The response rate was low, which makes it difficult to generalize the results of this study. We also realize that student opinions do not say anything about the effectiveness of the training program, merely about how the program is perceived by students. However, the perceived relevance of the content of the training by students is an important factor which predicts successful transfer [26,29].

4.4. Conclusion and recommendations

The longitudinal CCST program of the Radboud University medical school integrating communication skills training with medical knowledge and clinical skills. Simulated consultations in which students are expected to show proficiency in communication skills and various other medical skills seems to appeal to them. Our data show that our study population feels supported in transferring their communication skills from classroom to clinical practice by this program.

The implications of this study could be broad, but need more research to validate the results first. Further research is required to make claims about the efficacy of this program. More in-depth analysis of student experiences of this program is also needed to tailor it to specific student needs. A qualitative analysis of student opinions on our CCST might be useful to this end. A grounded theory research method could be used for this qualitative analysis for example, to define a more concise theory of how CCST should be shaped to improve transfer. Van den Eertwegh et al. [37] have provided a theoretical framework to improve transfer of communication skills to clinical practice. Combined with the practical framework discussed in this article we feel that we could make a first step in re-inventing CCST.

Ethical considerations

The participants of this study have not been subjected to actions covered by the Medical Research Involving Human Subjects Act (WMO). On this basis, the Central Medical Ethical board region Arnhem-Nijmegen the Netherlands (CMO) declares that the research does not fall under the remits of the WMO (Dossier number: CMO-020-6518). Subsequently the study design proposal was approved by the Education Board of the Medical Faculty Science Committee of the Radboud University Medical Center (Dossier number OMT2- ow21.70087). All participating students gave written informed consent. All data are anonymized, no identifying information is present. The research is conducted in accordance with the Netherlands Code of Conduct for Research Integrity.

Declaration of Competing Interest

No involved persons had competing interests in this study.

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Acknowledgements

We wish to thank all the students who completed the questionnaire. We also thank Chantal Hensens, for her input on the concept of the study, as well as the colleagues who helped with the face validity check of the questionnaire. (Ellen Bazelmans, Remco Haringhuizen, Pim Keurlings, Ietske Siemann en Janine Westerik). Finally we thank Marc Vorstenbosch for his help with the statistical analysis.

I confirm all patient/personal identifiers have been removed or disguised so the patient/person(s) described are not identifiable and cannot be identified through the details of the story.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.pecinn.2023.100158.

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