The Role of Simulated Patients in Students' Transactive Dialogues:

A Qualitative Study

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Abstract

Background

Simulated Patients (SP) facilitate a setting in which students can improve their medical consultation skills. SPs often give performance feedback and facilitate group discussion between students. To influence the learning outcome positively these group discussions should be highly transactive. Little is known about the link between SP utterances during these group discussions and the level of transactivity in dialogues.

This study aims to answer the question: To what extent is there a link between the content of SP feedback and transactive dialogues of students?

Methods

Transactivity of the dialogues was analysed by taking three analytical steps: (1) categorising the extent of transactive dialogues, by using the by Weinberger and Fischer described characteristics of transactive dialogues; (2) Thematic analysis, as described by Braun and Clarke, to analyse the SPs' utterances; (3) finding patterns between the extent of transactive dialogues and the SP themes.

Results

This research showed that of the 120 observed episodes, 36 episodes (33,33%) featured transactive dialogues among students, this was divided over 16 (80%) of the 20 feedback moments with SPs. The thematic analysis of SP utterances showed eleven themes where the theme *experience of the patient* was represented the most. In transactive episodes, all themes occurred at least once. Some themes were more prevalent in high transactive dialogues, while others were more common in low transactive dialogues. The themes, *points of improvement/pitfalls, important/good/tips, explanation case/role, goes along with student1 thoughts, future what if* seem to occur more in the high transactive episodes and the themes

experience of the patient, *contact peers, says nothing, gives turn to* and *SP off-task* are more often coded in low transactive episodes. When these themes are divided into roles and the SP steps out of the SP role this appears most in higher transactive episodes compared to its general occurrence.

Discussion

Although SPs are trained in giving feedback from the patients perspective, they also give feedback from the expert (teacher) role. It seems that when the SP gives feedback from the expert role, discussions are more often high transactive. Although this is connected to learning, in this case we do not know the content of what the students learn in this is in line with the heuristics. A follow up step is to explore what the students learn in these feedback moments. The presence of a communication skills teacher could counter possible negative effects of SP interventions during group discussions.

Key words: Simulated patients, Peer-assisted learning, Transactive dialogues, Thematic Analysis, Medical Consultation, Communication Skills

Index

Introduction

Problem statement

In medical education, it's essential for students to learn effective communication and consultation skills (Baessler et al., 2020). One common method for this is peer-assisted learning, where small groups of students practice medical consultations with Simulated Patients (SPs). SPs in this setting can be described as live standardized patients (Lee et al., 2023). In the training of consultations, SPs play the role of a patient. Throughout the consultation training, SPs actively participate as patients, contributing to the experiential learning process (Cleland et al., 2009). Post-consultation, they provide reflections on their experiences as patients during the interaction. How the students reflect with their peers at this moment after the consultation and what the SP can do to influence this moment of reflection is the focus of the current study.

Research by Lovink et al. (2021) showed that working with SPs can have a positive effect on students learning and that students who are trained by using SPs acquire more than only communication skills; this type of education also contributes to the professional identity of students. Besides learning with a SP during and after the consultation, students can also learn from each other, through their interaction in the feedback moment after the consultation (Er et al., 2020). After the consultation, the students get feedback from the SPs on how they have experienced the consultation as a patient. In this learning process, students talk to each other about the task, watch the consultation of others, share ideas, and make decisions together (Strebe, 2018). In the current study, this interaction in the feedback moment after the consultation is referred to as 'dialogue'.

During this dialogue students can externalize their thoughts and reflect upon the consultation. Externalisation of thoughts can for example be that one student shares their personal experience of conducting a consultation and as a reaction to this another student gives feedback on what stood out in the consultation (Fischer et al., 2002). According to Er and Gasevic (2020), engaging in these types of dialogues enhances students' ability to make sense of the feedback and their capacity to act on it. Two distinct patterns may emerge: First, the students can only give and receive feedback without further explanation or questioning; second, they may build on the by their peers verbalized ideas and transform them into more elaborate ideas or provide constructive criticism- this is referred to as "transactivity" in the dialogue (Gätje & Jurkowski, 2021). In addition, Gätje & Jurkowski report that in their study, university students trained to use transactive statements achieved higher test results than their untrained peers. Transactivity in the dialogue varies, with peers contributing more or less to the dialogue,

either by building upon their peers ideas or by providing isolated reactions, and this is related to their knowledge acquisition (Fischer et al., 2002; Teasley, 1997). Dialogues where students are more actively engaged with the input of their peers either by expanding on their knowledge or providing constructive critique, are associated with positive learning outcomes (Fischer et al., 2002). Mette and Hanze (2021) also conclude that transactive communication can improve the exchange of knowledge and result in learning. Current study is therefore focussing on these transactive dialogues.

So ideally, students engage in transactive dialogues. But as mentioned earlier, there is variation in this and it is not clear yet where this variation comes from. Next to the variation we see in the dialogues, we also see that the behavior of the SP shows variation. In current design of the communication education, the SPs are given the instruction to give feedback after the consultation from their patient role but the teachers of this education see that some SPs tend to give feedback from a teacher role. Therefore, current study explores if there is a link between the behavior of the SP and the level of transactivity in student dialogue. Knowing this is important as gaining insights into how SP behavior impacts peer learning allows for adjustments in SP instructions to enhance student learning.

While communication education primarily emphasizes skills, students also need to acquire knowledge about improving these skills. Therefore, this study draws upon theories related to transactivity within dialogues (Fisher et al., 2002). The degree of transactivity serves as a determinant of which students think about and build upon each other's feedback, and in high transactive dialogues, it is presumed that students derive greater learning benefits, ultimately enhancing their acquired skills (Weinberger & Fischer, 2006). Transactivity exhibits variability influenced by multiple factors. In the context of Technical Medicine (TM) education, one of these factors is the influence of Simulated Patients (SPs) in this educational context is noteworthy. While extensive research has explored the impact of SPs on students during consultation practice, scant attention has been given to their influence post-consultation (Cleland et al., 2009; Lovink et al., 2021). Thus, it remains unclear whether SPs affect student dialogues and the manner in which this influence operates. A comprehensive understanding of the link between SPs' utterances and student dialogues is essential to optimize SP-based education.

Hence, the objective of this study is to explore insights into what extent there are transactive dialogues between the students in the communication education and if there is variation in what the SP does. This provides insight into the link between SP utterances and the

level of transactivity of student dialogues, if this is clear the SPs instruction can be adapted to this.

Transactive dialogues

Building upon the previous discussion on the importance of transactive dialogues in the context of communication skills training, this paragraph establishes a connection between collaborative learning and transactivity. Students all have individual differences in their goals for communication skills training, but they do have a comparable goal in mastering the skills and successfully finishing the communication skills course, therefore the parts of theory behind collaborative learning that were interesting for this study are focused on. Drawing on insights from various perspectives on collaboration (Er et al., 2020; Fischer et al., 2019; Laal & Laal, 2012; Pooley & Bamford, 2018; Teasley, 1997), our focus is on collaborative learning within the framework of peer-assisted learning because this fits best with the context of the TM communication skills training. Saxe et al. (2009) conceptualize peer collaboration as a social process where concepts and thinking strategies emerge, transform, and circulate among students. The positive impact of peer collaboration on cognitive growth is evident in studies by Chiu (2008) and Mercer (2008). Within this peer learning framework, the occurrence of transactive dialogues is considered essential for students learning (Er et al., 2020). In relation to that, the studies of Ward and Lee (2005) and the study of Fischer et al. (2019) stress the importance of systematic thinking, focusing on unclear concepts, and maintaining a balanced discussion among students. Connected to this, Laal and Laal (2012) and Storch (2005) focuses on de concept collaborative learning on learning in groups. Combining these concepts, in current study students collaborate by observing and providing feedback to one another, aiming to develop competencies and prepare for end-of-quarter assessments. This peer feedback process is crucial, as studies suggest it enhances engagement and satisfaction (Dooley & Bamford, 2018). So, as literature shows peer feedback processes are important for learning.

According to Jurkowski & Hänze; Schuitema et al. (2015;2011, as cited by Gätje & Jurkowski, 2021), statements can be rated transactive when they contain content-related ideas that refer to and built on the feedback from their peers and transform this to a more elaborated idea. Teasley (1997) describes a transactive discussion as a type of interaction in which a student's own conversational turns are used to operate on the reasoning of the peer or to clarify their ideas. Weinberger and Fischer (2006) named dimensions of social modes of co-construction in a dialogue. These dimensions are categorized into high and low transactivity, whereby high transactivity is seen as a transactive dialogue. In these transactive dialogues,

students actively operate on each other's conversational moves where they are triggered to explore deeper levels of the material.

Relation between SP utterances and transactive student dialogues

In the feedback moments after the consultation, the SPs are in a difficult position because most SPs get the instruction to give feedback from their patient role, there is variation in how the SPs give this feedback (Bokken et al., 2009). Some SPs exhibit more expressions and behaviors that are from the perspective of a teacher role than others (Lovink et al., 2024). Next to that, Lin et al. (2015), state that behavior of facilitators, including teachers, have a positive influence on peer collaboration among students. It is expected that the behavior of an SP may also impact the quality of student dialogue (Bokken et al., 2009). Also taking into account that some SPs take on teaching roles, as reflected in the study of (Lin et al., 2015). While teachers in communication education are trained in giving prompts and asking follow-up questions, SPs lack similar training and instructions. Although SPs are instructed to provide feedback from their patient role, Lovink et al. (2024) show that they also work from the teachers perspective. It is unclear how this is related to students peer learning in the dialogues, current study further elaborates on this.

The variability in SPs' behavior can take different forms, and may subsequently affect the level of transactivity in student dialogues. For instance, some SPs may pose numerous questions, fostering an interactive exchange, while others adopt a more reserved approach to post-consultation feedback. Lovink et al. (2024) show that the SPs view their contribution to student learning from different perspectives. Moreover, variations in the SPs' level of criticism and the extent of constructive feedback provided can significantly impact the depth of discussions (Le Roux, 2019). Considering that the SP can influence the level of transactivity in dialogues, it can thus impact students' learning opportunities. Therefore, it is intriguing to explore the link between SP utterances and the level of transactivity in student dialogues. As mentioned, SPs play a crucial role in the learning processes of TM students at the University of Twente.

Although SPs are trained in giving feedback from the patients perspective, they also give feedback from the expert (teacher) role (Bokken et al., 2009). In communication education at the University of Twente, educators involved with the communication education at TM, have observed disparate levels of success among student groups in terms of the quality of their dialogues during feedback sessions. Termed as the "transactivity" of the dialogue within the

scope of this study, this discrepancy prompts further inquiry into the extent to which the behavior of the SPs influences the level of transactivity observed in student dialogues. Various factors may contribute to this phenomenon, such as potential differences in the feedback provided by SPs to different student groups. Because of this, the actions of the SP during the feedback moments with students are looked at. So it could be that the SP only gives a reflection of the consultation, An example of this is: "I felt good in this consultation, you were listening to me". Or a SP also prompts other students, for example: "I felt good in this consultation, does someone have an idea why?" and there are many more possible actions the SP can do during the feedback moments. What these actions are and which of these actions can be linked to the level of transactivity in student dialogues is being investigated. In the following paragraph, the questions that this study will answer and the expectations are further elaborated.

Current study

   To enhance guidance for instructing SPs in fostering transactive dialogues during feedback sessions, it is essential to comprehend the SPs impact in these critical moments. As indicated in the introduction there is a variation in the degree of transactivity in the dialogues of the TM students. Additionally, as elucidated in the preceding paragraph, a spectrum of behaviors is evident among SPs during post-consultation feedback sessions. Literature suggests that the behavior of SP can be linked to the level of transactivity in students' dialogues. That is why in this study we distinguish between high and low transactive dialogue and we are particularly interested in the behavior of the SP before a high transactive dialogue takes place. This way, we can gain insight into whether there are behaviors of the SP that can be linked to the level of transactivity in student dialogues. Consequently, the primary research question is posed as follows: To what extent is there a link between the content of SP feedback and the level of transactivity in student dialogues, and thereby stimulate the students' learning process and outcomes during communication training?

  Addressing this question necessitates an initial assessment of the prevalence of transactive dialogues. Thus, first the following sub-question is answered: To what extent are transactive dialogues observed in first-year feedback moments? Because first-year students are new to this education some factors can influence the transactive dialogues negatively, for example the use of guidelines for giving feedback (see Appendix 1). Furthermore, to elucidate the initial question, it is imperative to explore the actions undertaken by SPs during feedback moments. Therefore, the second sub-question is: What themes can be distinguished from what the SP says during the feedback moments? To decide if a dialogue is transactive the social modes of

Weinberger and Fischer (2006) are used. In this study, a dialogue is measured as transactive when social mode four or five appears at least once in the episode that is measured. When these social modes cannot be found in an episode this can be seen as a more superficial dialogue. The theory about learning in dialogues says that when the students get prompts to externalize their thoughts this enhances learning.

In this study, considering the structuring framework for feedback sessions delineated in Appendix 1, we expected that the *transactive student dialogues would occur in less than half of the feedback moments.* The second expectation was *that within the dialogues distinct SP themes, including providing feedback from the patient role and posing follow-up questions, can be identified.* The study aims to compare feedback moments categorized as high transactive and those categorized as low transactive to explore the link with SP utterances in these situations. Accordingly, the third expectation is *that the degree of transactivity is contingent upon the themes identified during the transactive dialogues.* The study further intends to explore the content of what the SP communicates to facilitate a transactive dialogue.

Method

Design of the study

For this exploratory study, qualitative research was conducted to understand the impact of individual SPs on the transactive dialogues of TM students. To get insight into the relation between SP utterances and the level of transactivity in student dialogues, retrospective observation video analysis was conducted, on videos of dialogues. In this analysis, the dialogues were coded and analysed and open coding and thematic analysis, was done (Braun & Clarke, 2006).

Video setting

Communication education for conducting a medical consultation is an fundamental element of the study TM at the University of Twente (Miedema, 2015). First-year students in TM programme at the University of Twente and SPs used in communication training form the target group of the current study. The communication education at the UT consisted of three key components: 1) Lectures, which typically provide general introductions. 2) Self-study, allowing students to practice consultation skills independently outside scheduled sessions. 3) Practice consults, where SPs play the role of a patient and students practice their skills and reflect on their learning with the SP. This reflection moment of the third component was the focus of the current study and took place in a room with one simulated patient and a group of

three to five students. The students that participate in these trainings were recording their consultation and the feedback they give and receive. During the training, one student speaks with the SP, while the others observe the consultation and provide feedback. Figure 1 was made to give a clear view of the setting where these consultations took place, this shows that the peer students are sitting at the side and the SP is sitting at the table with the student who had just conducted the consultation. The student who had just conducted the consultation is the subject of the feedback and is therefore referred to as Student1.

Figure 1

Setting consultation practice at the University of Twente, TM
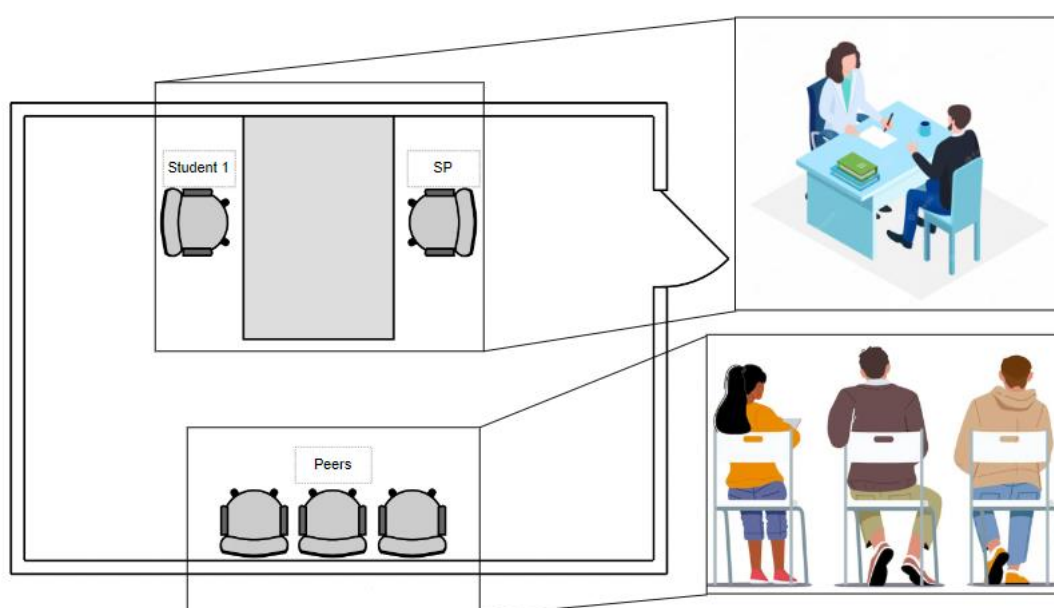
During these training sessions, students spend 25 minutes with one SP before moving to a different SP for another 25 minutes. In approximately half of these training moments there was also a teacher present. The SPs were instructed by a teacher before they start their shift and have learned their role beforehand. Next to that, the SPs were instructed to provide feedback after the consultation based on their experience as a patient during the consultation. The students were prepared for this education with guidelines to give feedback to each other (shown in Appendix 1).

The end goals of the first-year communication skills lessons were to identify and use the basic principles of communication when interacting with a patient and in different phases of a simulated medical consultation. This included employing (self)reflection, directing their

own learning and take appropriate actions. In addition, the students used acquired knowledge about communication in the first phase of a simulated medical consultation, they could assess and justify their actions in the first phase of a simulated medical consultation, could analyse the consultation skills of others, provide constructive feedback on this, and assess and reflect on feedback received.

Data and participants

The raw data consisted of 597 videos that varied in length between three seconds and three hours. To ensure a diverse representation of Simulated Patients (SPs), an adapted stratified sampling approach was employed. The sampling process began by identifying an SP, without considering the variety of students present in the videos. Consequently, some videos may feature the same students, what makes that some factors can depend on one person. Subsequently, certain videos were not used in the data: when the student names or SPs were missing, if the feedback moment was not recorded, if a teacher was present (as a teacher could potentially influence the dialogue, introducing a variable that alters the research question), and if there were only two students present (e.g., due to illness). A flowchart illustrating the sampling procedure is available in Appendix 2. Ethical approval, nr 230861, was obtained and passive consent of the students and SPs involved was asked. The students and SPs are made anonymous in the report and data outcomes.

The data used for this study consisted of 20 videos from 08-09-2022 to 01-06-2023 in the first-year *(N=126)* of communication education, each lasting approximately 5 to 10 minutes. In these videos, one student and one SP *(n=20)* were visible, while the peers could only be heard and not seen. This was secondary data and was recorded in a system called Learning Space, to which the teachers had access.

Coding process

A pilot study was conducted to assess data suitability for further analysis by coding three videos. The aim of the pilot was to identify dialogues with higher transactivity. If these higher transactive dialogues were not found, this data would not be suitable for answering the research questions of current study. Analysis confirmed high transactivity, making the data suitable. After this pilot, the coding scheme was optimised, and all 20 videos were transcribed and coded.

For coding the videos, Atlas.ti 23 was used, because the coding could be done directly on the video, and making transcriptions was not necessary.

In this study, two rounds of coding were conducted. The first round of coding focussed on the degree of transactivity in the dialogues based on a coding scheme that was inspired by the work of Weinberger and Fischer (2006). Subsequently, the second coding round focussed on the content of the feedback from the SP was analysed by using thematic analysis, a qualitative analytic method described in Braun and Clarke (2006). The methods included validated tools measuring the interaction between the SPs and these students. The step-by-step data-analysis process from the first coding round is shown in Appendix 3 and from the second coding round is detailed in Appendix 4.

Analysis of transactivity in dialogues

In coding the videos, where the level of transactivity was used, we focus on the level of transactivity in dialogues. The coding scheme, adapted from Weinberger and Fischer (2006), categorized transactivity as either low or high.

Table 1

Categories of social modes for coding the episodes

Categories	Description	Examples
On task	Everything that is about the consultation practice they have just had	"My feeling about the consultation was quite good today…''
Off task	Everything that is not about their consultation or feedback	"Do we need to stay in this room? Wait I will just check this in the roster"
Low transactivity	Externalizing their ideas to the group or conversational partner OR Asking for more information OR Agreeing	"I think it is important to make a summary at the end" "How would you make a summary then?" "Yes I understand what you mean"

	without further	
High transactivity	discussion	"Oh I thought I only had to
	Taking over, integrating	make a summary after the first
	and applying the	part but I think you are right,
	perspectives OR	next time I will end the
	Disagreeing, modifying	consultation with a summary"
	or replacing the	"I don't that it is a good idea
	perspectives	to make a summary at the and
		I think it's better to ask the SP
		if he or she has questions after
		your summary. This way you
		will end more together with
		the SP"

The following steps were taken to code transactive dialogues (A flowchart of these steps can be seen in Appendix 3). First, the dialogues were segmented into episodes of one minute. Then there is looked at the students in these episodes and decided if this episode was mainly on task or off task. When the episode was on task, this was categorised it into high transactivity or low transactivity with the following hierarchy: Listen to the episode and code what you have seen the *students* doing in this one minute, and decide if the talk is a *response* to another speaker in the feedback session, or if it is a separate *externalization.* If it is a response to another speaker, look if this is agreeing or disagreeing. When agreeing, decide if it was just agreeing without further discussion *Low transactivity* or taking over, integrating and applying the perspectives with *High transactivity.* When disagreeing, modifying or replacing the perspectives, *High transactivity.* If it is not a response to the other speaker, *Low transactivity (*see Table 1 for an explanation and examples of these transactivity levels). So an episode could be high or low transactive and per SP the number of high and low transactive episodes were summed up. With this analysis, the research question to what extent are transactive dialogues observed in first-year feedback moments, was answered.

The three documents used for the interrater reliability had seventeen episodes (*N*=120), which makes this above the 10% range. The interrater reliability of the coding of the episodes in the dialogues reached 0.905 (Krippendorfs Cu alpha). Two of the documents had a perfect agreement of 1.0 (Krippendorfs Cu alpha) and one document had an agreement of 0.772 (Krippendorfs Cu alpha).

Thematic analysis SPs

To discover meaningful patterns and themes in SP statements, a thematic analysis was carried out. The thematic analysis was based on following the six steps of Braun and Clarke (2006), 1. Familiarizing with the data 2. Watching the videos and generating initial codes, this was done by using Atlas.ti 23 3. Searching for themes 4. Reviewing themes, generating a thematic 'map' of the analysis. 5. Defining and naming themes, making the definitions clear. 6. Producing the report. Step three, searching for themes, will be explained further because this goes into how the results are displayed. This step was an iterative process based on the cutting and sorting technique, whereby similar quotes are selected, and from this themes are made (Ryan & Bernard, 2000). This coding technique was done in the following way. First, when the SP talks in an episode the coder asks the question, what is the SP doing? From the answers to this question, the quotations were made. An example of this is when an SP says to the peers: "*Perhaps you have more substantive feedback*" Then the quotation would be "*SP gives the turn to the peers*" and this falls under the theme "*Gives the turn*". Second, these quotations were printed, and the different themes were selected. Third, when all themes were selected and named (Ryan & Bernard, 2000). Fourth, the first three steps were repeated until all quotes where into the main themes. One exception was made, the code "*SP says nothing*" was a theme in itself without taking these steps. With the outcome of this process, the research question what themes can be distinguished from what the SP says during the feedback moments, was answered.

To increase the transferability and robustness of this coding process a second coder was involved. This second coder was trained by the first coder to take the steps of thematic analysis (Braun & Clarke, 2006). As described by Braun and Clarke (2021), coding reliability procedures often result in themes that are relatively superficial and underdeveloped. Braun and Clarke (2021) emphasize that reliability in qualitative research is not about replicating exact results but more about being consistent in interpreting data and generating meaningful insights. Rather than using statistical measures of reliability, Braun and Clarke (2021) suggest that the most important aspect of reliability in thematic analysis is the consensus among researchers.

Therefore, the goal of this training was not to reach an agreement but to come to a consensus with interpretations as a starting point. The second coder was trained and in five rounds of recoding were the differences between the coders discussed by watching the videos together. In this, the two coders came to a consensus about the themes that were seen in these documents. After this, one sample document with codes was sent to the second coder to check the consensus. With this, the consensus between the coders was reached.

Determining the relation between the theme of SP utterances and transactivity of student dialogues

To see the relationship between the SP utterances and the transactive dialogues, a comparison between these two was made. This was done by comparing percentage of the total amount of high transactive episodes, with the percentage of high transactive episodes within each theme. This comparison answers to what extent the content of SP feedback was linked to the level of transactivity in student dialogues, and thereby stimulates the students' learning process and outcomes during communication training. The results of these analysis are explained in the following paragraphs.

Results

In this study, we investigated the role of SPs on transactive dialogues of students TM. First, we will present the transactivity of the dialogues, second, we will elaborate on the themes that SPs discuss in these dialogues, and third, we will explain the relation between the theme of SP utterances and transactive dialogues. This overview is subsequently used to assume or reject the hypotheses.

Transactivity in the dialogues

To answer the question, to what extent there were transactive dialogues in the first-year feedback moments. From the 120 episodes, twelve were coded off-task. The remaining 108 were on-task and included further analyses. Of these remaining episodes 72 (66,77%) showed only low transactivity and 36 (33,33%) were coded with high transactivity. These 36 moments of high transactivity were divided over 16 of the 20 feedback moments with different SPs, this means that with 4 SPs no high transactivity was found. In total, there are 93 episodes across these 16 feedback moments with SPs, each containing at least one high transactive episode, so this means 38,71% is high transactive in these moments. An overview of the results is shown in Figure 2, here you see that there is quite some variation high and low transactive dialogues between SP's in the distribution of high and low transactivate episodes. Most feedback

moments with SPs have more low than high transactive episodes, except for SP 13 and 19, they show more high than low transactive episodes.

Figure 2

Moments of High transacivity and Low transactivity divided over the SPs
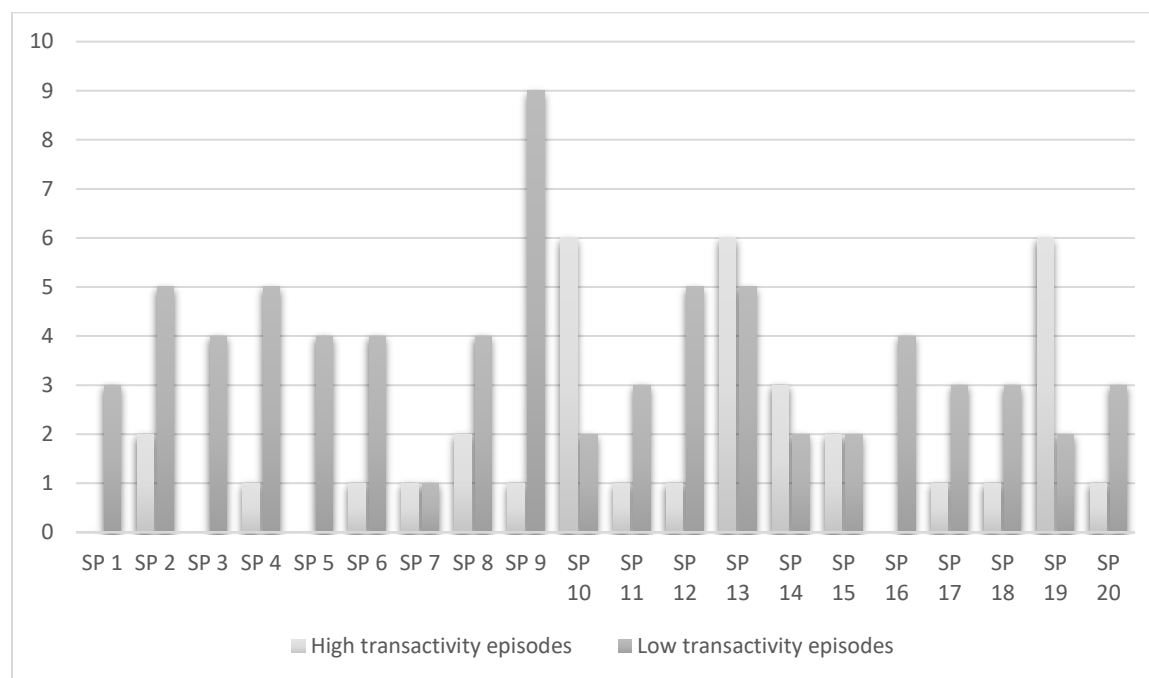
Thematic analysis SPs

As described in the method section, a thematic analysis was carried out and also the frequency of these themes were given. The themes that are developed answer the research question, what themes can be distinguished from what the SP says during the feedback moments. The following eleven main themes were found in the data, *experience of the patient, points of improvement/pitfalls, contact peers, what is important/good/tips, asks question, says nothing, explanation of the case/role, gives the turn to, goes along with student1's thoughts, SP off task, future/what if* (As explained in the method student1 is the student that just completed the consultation). Table 2 shows the distribution of the themes across the 20 feedback moments. For example the *experience of the patient* was coded with nineteen of the 20 feedback moments with the SPs. In this table in second column the themes that are distinguished can be seen. These themes are categorized based on the role under which most of the SP utterances in that theme fall, as indicated in the first column. Next to that, the third and fourth column show the total amount that themes where coded and that the themes are divided over the feedback moments with the SPs, almost equally to how much the theme was coded in total. Therefore the themes

seem to be randomly divided over these feedback moments. The themes are described below the table in order of frequency, with in an explanation and examples of these themes.

Table 2

Distribution of the themes of the 20 feedback moments of the SPs

Role where most of the utterances of the SP in the theme where in	Themes	Total	Amount distributed over the 20 SPs
In SP role	*Experience of the patient*	50	19
	Asks question	18	14
Out-of SP role	*Points of improvement/pitfalls*	33	15
	What is important/good/tips	20	13
	Explanation of the case/role	14	9
	Future/what if	5	3
Facilitating/ other	*Contact peers*	20	11
	Says nothing	15	8
	Gives the turn to	13	10
	Goes along with student1's thoughts	10	6
	SP off task	7	7

First, the *experience of the patient*, this theme was distinguished when the SP name how the consultation was experienced by the patient, what it meant for this patient and/or how it came across in the consultation. In short: how does patient experience the consultation or what is it like to be a patient in general? Examples of what SPs say in the code *experience of the patient* are, when a SP expressed her feelings: '*I really felt welcome here. You invited me to sit here and then you picked me up. I also had the feeling that I could tell my story well and that you listened to me. I certainly felt heard.*' Or when the SP gave compliments or positive feedback and stated that things went well or what went well: "*I also thought it was a good*

consultation. Entry was good, you clearly explained who you are and why you are here. And also the questions, you asked them well. What I think is very good is that you asked whether the family has also diabetes. You respond well to that too"

Second, *points of improvement/pitfalls.* Here the SP highlights where the students could enhance their performance or hat common pitfalls should be avoided. This point is related to the role of a critic that the SP can have (Le Roux, 2019). An example of this was when a SP indicated what the student who had just completed the consultation did in the consultation and what could be improved.: '*I can also say what I missed. You have mainly explored the knee and the physical complaint. And where I am and who I was in my life and why do I really want clarity now when I have been dealing with it for a month, we have not gotten around to that*' Or when a SP points out a pitfall: '*I said way too much here, so I think it would be good for you to practice breaking in when I am speaking, repeating something I say of taking a breath somewhere.*

Third, the theme *contact peers*, is coded when the SP responds to peers, continues to what peers have said or makes contact with the peers. Contact with peers is mostly short connections that SPs make with peers or confirm the ideas of peers. Examples are when the SP continues on the feedback from peers: '*Yes, I had that feedback too, the jacket has to be closed*' or when the SP makes contact by giving a compliment to the peers '*Yes, very good, great! You then say we are going to investigate'*.

Fourth, *what is important/good/tips,* here the SP identifies what is important (in general) or gives tips on how students can do certain things. This theme is seen as the opposite of *points of improvement/pitfalls*. In this the SP says what is good to do. This often concerns generally what is good, such as how a summary is given, but it can also be tips for student1 on how to do something better. This is not feedback from the *experience of the patient* but more in general, what is good to do or a tip for student1. Examples of what a SPs said in this theme are when the SP indicates what the right way was '*To students that start with this education I always say that you must immediately unlearn the wrong things that I, we, and you both find wrong. You will benefit so much from that later. If you're a first-year or second-year student, you'll soon put that to good use'* or when the SP indicates what is important in a consultation: *'If you are too busy with I want this and I want that and I want this way. Then you are only concerned with that and very often you no longer listen to the patient. Then you often think, I asked a question and I have an answer to it and that's fine, when the patient is finished talking I'll ask the next*

question. Then you didn't hear what I said. So it is important to have something in your head that says I need to know certain things'.

Fifth, *asks question*, here the SP asks a question to student1 and/or peer(s). Examples of what an SP said in this theme are when a SP asks *student1 'Well, how do you think it went?'* or when the SP asks a question to peer(s) *'I don't know if this is important in a consultation, but should you still ask about any other physical complaints?'*.

Sixth, *SP says nothing*, means that the SP is quiet during the episode of one minute.

Seventh, *explanation of the case/role,* in this theme the SP explains what this case was like, why the SP said certain things in this case, what this case is about or what other things the SP could have said or did in this role. In short, in this theme the SP explains specifically how the case was put together. Examples of this theme are when the SP describes what this case was like: '*Well in this case, what am I? I am a teacher in an agricultural course and I am a gardener, so I do need to bend my knees and therefore it certainly has an effect on my daily life'* or '*In the meantime, I could still tell you a lot what I can do. I haven't told you all that now and it doesn't matter for now, but...'*.

Eight, *gives the turn to,* in this theme the SP gives the turn to student1 for example the SP says to student1 *'you can also say it yourself first'* or the SP gives the turn to peers by saying: *'Oh god, it is better when you guys go first because I have to think about that first'.*

Ninth, *goes along with student1's thoughts,* in this the SP goes along with student1's way of thinking during the feedback round and continues or confirms the thoughts. Examples of what SPs say in this theme are when the SP indicates what she realized: '*Yes, I realized that, yes, I thought I should continue chatting'* or confirms student1's thoughts: '*Yes, and you know what the research is about, yes that is right'*.

Tenth, *SP off task*, in this theme the SP says non-task related things for an entire speaking turn. Examples of what a SP says in this theme are at the beginning of the feedback moments: '*I stay seated, I have walked back and forth to that door so many times now that my back hurts'* or at the end of the feedback moments: '*Well guys, I'm going home now'.*

Eleventh, *future/what if.* In this theme the SP states what would happen if the student were to do something in a consultation, SP states what happens in the future when students are second or third years, SP indicates what it would be like in the future and/or how he would respond to certain actions by a student. For example, the SP explains what he would do '*If you*

are a third year and you will go off track because then you will have to make it serious announcement to me about very serious illness. If you say OK twice in a row, I will shake your hand and leave' or when a SP indicates what it will be like in an assessment '*Assume that those roles in the exams are a little easier, so you just go back to it calmly*'.

Link between the theme of SP utterances and transactivity of student dialogues

To explore insight into the link between the theme of SP utterances and the transactive dialogues of students, first the high transactive dialogues, and low transactive dialogues are compared to the themes that were identified (an overview of this is shown in Table 3). In the data, it was found that 33,33% of the episodes were seen as high transactive, therefore percentage that the theme is coded in high transactivity is compared to this total percentage.

Table 3

Results of thematic analysis of themes in low transactivity episodes vs high transactivity episodes

Themes and roles	Total	High transactivity (%)	Low transactivity (%)
Themes:			
Experience of the patient	50	13 (26)	37 (74)
Points of improvement/pitfalls	33	15 (45,45)	18 (54,55)
Contact peers	20	6 (30)	14 (30)
What is important/good/tips	20	10 (50)	10 (50)
Asks question	18	6 (33,33)	12 (33,33)
Says nothing	15	4 (26,67)	11 (73,33)
Explanation of the case/role	14	8 (57,14)	6 (42,86)
Gives the turn to	13	2 (15,38)	11 (84,62)
Goes along with student1's thoughts	10	5 (50)	5 (50)
SP off task	7	1 (14,29)	6 (85,71)
Future/what if	5	2 (40)	3 (60)

Roles:

In SP role	68	19 (27,94)	49 (72,06)
Out of SP role	72	35 (48,61)	37 (51,39)
Facilitating/ other	65	24 (36,92)	47 (72,31)

So in Table 3, the results of the thematic analysis in low versus high transactive episodes are shown. Firstly, for the themes *experience of the patient, contact peers*, *says nothing, gives turn to, SP off-task*, the results could indicate that these themes are coded less frequently in high transactive episodes compared to its general occurrence.

Secondly, for the themes *points of improvement/pitfalls*, *what is important/good/tips, explanation case/role, goes along with student1, future what if,* the results give indications that these themes are coded more in the high transactive episodes than there were in general.

And lastly, for the theme *asks question,* the results indicate that this theme is coded just as often in the high transactive episodes as there were in general.

The themes, as shown in Table 3, were divided into three roles representing the contexts in which the SPs provided feedback. First, when the SP gives feedback *in the SP role* the results indicate that these themes where the SP stays in the patient in role are coded less frequently in high transactive episodes compared to its general occurrence. Second, when *the SP gives feedback out of the SP role* the results indicate that the themes where the SP steps out of the patient in role are coded more frequently in high transactive episodes compared to its general occurrence. Third, for the themes that appear below *facilitating/other* the results indicate that that the themes that appear below facilitating/other are coded more frequently in high transactive episodes compared to its general occurrence.

So, when the themes, *points of improvement/pitfalls*, *important/good/tips, explanation case/role, goes along with student1 thoughts, future what if* are coded, they seem to occur more in the high transactive episodes. And when the themes *experience of the patient*, *contact peers, says nothing, gives turn to* and *SP off-task* are coded this is more often in low transactive episodes. When these themes are divided into roles and the SP steps out of the SP role this appears most in higher transactive episodes compared to its general occurrence.

Conclusion and Discussion

In this study, we expected that *transactive dialogues occur in less than half of the feedback moments* which was confirmed by the data. The second expectation was *that within the dialogue distinct themes, including providing feedback from the patient role and posing follow-up questions, can be identified.* In the data there were eleven different themes identified which included providing feedback from the patient role and asking question. And lastly, the third expectation *that the degree of transactivity is contingent upon the themes identified during the transactive dialogues*, cannot be confirmed. But there are cues that when a SP steps out of his patient role and for example gets into a teacher role, there are more transactive dialogues. This can be seen in Table 3, in the higher percentages of the themes that are out of the SP role. Next to that, when a patient only gives feedback from his patient role this study indicates that there are less transactive dialogues. How this is related to previous literature and what this would mean in practice is explained in the following paragraph.

The present study aimed to explore whether there was a link between the content of SP feedback and the level of transactivity in student dialogues. In summary, the study focused on first-year technical medicine students and revealed that while less than half of the episodes involved transactive dialogues, 80% of the total feedback moments had at least one high transactive episode. This finding implies that, despite the majority of episodes being low transactive, students were still engaging in meaningful learning experiences when episodes were characterized as high transactive, all themes emerged at least once. The themes *experience of the patient, points of improvement/pitfalls, contact peers, what is important/good/tips, asks question, says nothing, explanation of the case/role, gives the turn to, goes along with student1's thoughts, SP off task, future/what if,* were distinguished in this study and appear to be distributed randomly over the feedback moments with the SPs. These themes were divided into the roles, *in SP-role, out of SP-role, facilitating/other.* The results of current study indicate that when an SP gives feedback from the expert role, dialogues could have a higher likelihood of high transactive dialogues. A prior study of (Bokken et al., 2009) also shows that, although SPs are trained to give feedback from the patients perspective, that they also give feedback from the expert (teacher) role. However, it is noted that this does not necessarily guarantee that students are learning accurate information, as SPs may not be trained to take on the expert role and could potentially reinforce misconception.

Because of this potentially reinforced misconception, there are implications for improving education based on the findings of current study. The study suggests that instructing SPs to stimulate high transactive dialogues and encouraging them to assume the expert role might enhance the learning experience for students. However, it acknowledges the need for further research into the content of SP feedback to determine the accuracy of what students are learning in these high transactive episodes. Overall, current study provides valuable insights into the dynamics of feedback in medical education, particularly in the context of SP-student interactions. A next step in this research would be in-depth research that focuses on the content of what the students are learning.

The first research question focussed on the extent of transactive dialogues. This study showed that in the first-year technical medicine students come to transactive dialogues in one-third of the episodes. This does not mean that the students are not learning enough, but only that the students are not going into deeper discussions in most episodes. The limited amount of transactive dialogues can be explained by what is clarified in the introduction, that the first-year students have rules that students follow for giving and receiving feedback (See Appendix 1). This has an effect on the dialogues because the novice students were focused on these rules and thereby could have less focus on their discussion. Although in the majority of the episodes are low transactive, 80% of the total feedback moments had at least one high transactive episode. Because this is associated with a more effective learning process, transactive dialogues are important for the learning process of the students, as Ward and Lee (2005) and Fischer et al. (2019) emphasized.

Based on the study of (Lovink et al., 2021), it was expected that themes, like the *experience of the patient*, could be distinguished from what the SP said during the feedback moments. As an answer to the second research question, in the episodes eleven themes are distinguished that were observed with (almost) all SPs, and the theme *experience of the patient* was observed with nineteen of the twenty SPs. This was also expected because, as explained in the introduction, the SPs are instructed to give feedback on the experience of the patient and thereby in the patient role. In contrast to that there are also themes distinguished where the SP goes out of the SP role and steps into the role of an expert (teacher), for example the theme future/what if. This was also expected based on the study of Bokken et al. (2009). So it seems that the themes can be divided into SP in-role and SP out-of-role, but we cannot distinguish these two roles exclusively in the current study.

By comparing the outcome of the extent of transactive dialogues and the different themes that occurred, the third research question, focussing on the link between SP utterances and the level of transactivity in student dialogues was answered. The themes, *points of improvement/pitfalls*, *important/good/tips, explanation case/role, future what if,* were coded more often in high transactive episodes. In these themes the SP steps out of the SP role, while the theme *experience of the patient* is in the patient role and coded less often in high transactive episodes. This finding is also in line with the introduction discussed study of Le Roux (2019), which indicated that when the role of a critic is taken there would be more transactive dialogues. The expert role is positive for the learning of the students as Lin et al. (2015) stated that behavior of facilitators, including teachers, have a positive influence on peer collaboration among students. So it seems that when SPs take the expert role this increases the amount of high transactive episodes. With this outcome it is important to note that although the expert role is linked to a higher level of transactive dialogues which is associated with more efficient learning, in this case we do not know what the students learn in this. Because SPs are not trained to take on an expert role they could reinforce students' misconceptions. So we cannot say that the SP should take the expert role, but from the results of this study we do see clear starting points to explore further in the future.

To conclude, this study found that in most of the TM first-year communication feedback moments there are high transactive episodes. In these feedback moments the SP utterances could be distinguished into eleven themes. When these transactive episodes and SP themes are compared this gives indications that the SPs give feedback from both the role of the expert as from the SP role and that the role from the expert seems to be associated with high transactive episodes. But when the high transactivity is seen, we have not measured about what the students learn more. The content of the feedback is not fully included in this study. The consequence is that, we don't know if what the students learn is what we want them to learn, this is a good starting point for further research. So we know that there are high transactive dialogues, but in this case we do not know is what they learn is correct or incorrect.

The results of present study can be used to improve the education by finding the best way to instruct the SPs. First, it is interesting to see that there were high transactive dialogues in first-year education because this implicates higher levels of learning (Weinberger & Fischer, 2006). Second, in training the SP it would be good for the high transactive dialogues to stimulate go in the expert (teacher) role and thereby step out of the SP role. But this is not asked from the SP, and as discussed in the introduction the SPs do not have the background of a teacher. In

addition, although Weinberger and Fischer (2006) state that high transactive dialogues implicate higher learning, this study focuses on groups of students that have a dialogue with each other. In current study the SP is also part of this dialogue and there is inequality in the SP/student position. Therefore these results do not say that we need to train the SPs to give their feedback more on an expert level but more research on the content of what the SP says is necessary to conclude what a SP can do to get more high transactive dialogues. To conclude, we cannot say that SPs should be trained to give feedback from the expert role, but this study gives a starting point to do more research into what the students learn in these high transactive episodes.

Strengths, Limitations and Recommendations

The current study explored the link between simulated patients' (SPs) dialogue moves and the level of transactivity in student dialogues during feedback moments. The study was mainly exploratory, as existing literature addresses transactivity levels, as well as literature about the influence of SPs on student learning but lacks a focus on feedback moments where SPs engage with the complexity of the patient-expert dynamic. Because the method that was used is an interpretation of how this should be used in this new field, the findings of this study can be seen as a starting points for further research.

In current study, variations in substantive interpretations within a single theme were identified as a potential weakness in the analysis method employed (Kiger & Varpio, 2020). For instance, in the theme "asks questions," one SP poses the more superficial question: If these are all students?", followed by non-transactive dialogue moves, while another SP challenges the student with the comment: 'whether the students should ask about further complaints of the patient?' that prompted a transactive dialogue. These differences highlight the need for a more refined analysis approach, possibly achieved by expanding and refining the themes continuously. In here the first SP has a superficial question that helps her to give her feedback, but the second SP challenges the student to think about her question. To improve this methodology the themes could be expanded, which is an endless process that can be done over and over. However, by doing this the data could be explored in a more fine-grained way.

Next to that, the data was not derived randomly, because otherwise in some of the feedback moments time constraints play a major role. Also, although the teachers were not present in the feedback moments, influences of teachers were seen in the data. For example,

one of the SP that said: '*I just heard one of the teachers say…*'. This illustrates the influence teachers have when they are not present in the feedback moment.

Another important note to set is that the feedback moments were filtered on the twenty different SPs, but no attention was given to having different students in these twenty feedback moments. Having the same group of students in multiple feedback moments in the data could have been a confounder, but the researcher has seen only one group of students two times in the data.

Additionally, in approximately half of the feedback moments there is also a teacher present. This teacher can have an important role in securing that the students learn the right content and next to that the presence of a teacher can influence the role of the SP. Because the teacher does have the expert role, it is interesting to see what themes occur with the SP in these feedback moments and if this gives more or less high transactive episodes.

Conclusion

In current study we found high transactive dialogues in communication education with SPs. When the SP gives feedback out of the patient-role there are more often high transactive dialogues seen, then when the SP gives feedback in the patient-role. Although transactivity is connected to more effective learning, in this case we do not know whether students learn the correct communication skills. So, the next step is to find out more about what these students learn in these feedback moments and until this more clearer, the presence of a communication skills teacher could counter possible negative effects of SP interventions during group discussions.

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Appendix 1 guidelines for feedback

Typ/schrijf in het formulier zo concreet mogelijk wat je hebt gezien en wat het effect was van wat je hebt gezien. Let tijdens het consult op positieve punten (top) en verbeterpunten (tip).

Naam observator :

Luisterhouding *Hoe beschrijf je de leerhouding? Wat betekent dit voor het consult? Hoe reageert de patiënt hierop?* *Denk daarbij aan: actief/niet actief, verbaal/non-verbaal, vraagt de TG'er door op wat de patiënt zegt?*	**Top:**
	Tip:
Stellen van vragen *Hoe komt de TG'er meer te weten over de patiënt? Welke vragen worden er gesteld en op welke manier? Wat betekent dit voor het consult? Hoe reageert de patiënt hierop?* *Denk daarbij aan: open vragen, gesloten vragen, suggestieve vragen, vragen die niet gesteld worden en die je mist.*	**Top:**
	Tip:
Gespreksvaardigheden *Welke gespreksvaardigheden zet de TG'er in? Op welke manier? Wat betekent dit voor het consult? Hoe reageert de patiënt hierop?* *Denk daarbij aan: samenvattingen, parafrases, gevoelsreflecties, etc.*	**Top:**
	Tip:

Appendix 2 flowchart sampling procedure
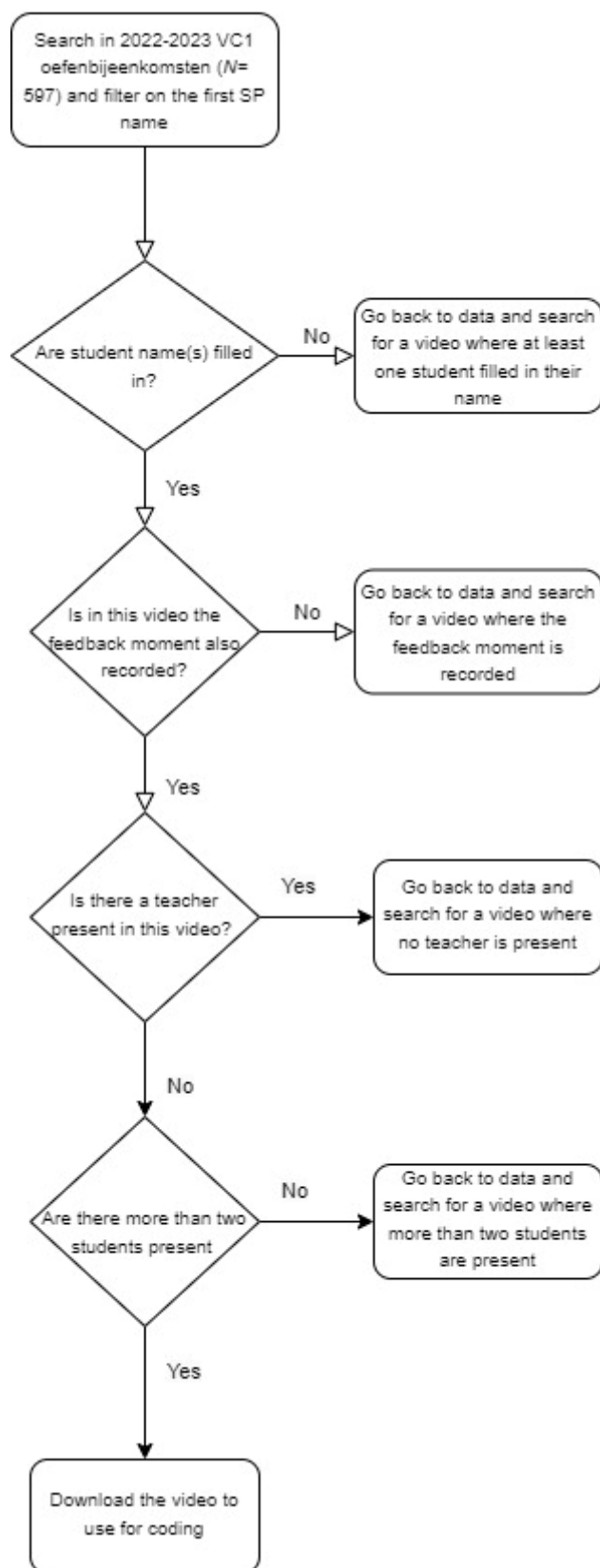
Appendix 3 Coding process round 1 transactivity
Coding scheme and steps to take to code the videos 1

For coding the videos the hierarchy below needs to be kept in mind:

1. Split the video into moments of one minute (the last episode can be shorter)
2. Only look at the **students** and code if this minute is mainly **on task or off task**. (if more than half of the minute is off task, leave your code with **only off task**) If it is on task go to the next step.
3. Listen to the episode and code what you have seen the **students** doing in this one minute, decide if the talk is a **response** to another speaker in the feedback session, or if it is a separate **externalization.** If it is a response to another speaker, look if this is agreeing or disagreeing. When agreeing, decide if it was just agreeing without further discussion **Low transactivity** or taking over, integrating and applying the perspectives **High transactivity.** When disagreeing, modifying or replacing the perspectives, **High transactivity.** If it is not a response to the other speaker, **Low transactivity**

KEEP IN MIND:

*During de coding process we only look at the students, so if the SP is giving a reaction with higher transactivity this won't count. Only if one of the students gives this reaction it counts.

*If an episode has High transactivity and Low transactivity, the code Low transactivity has to be removed

*You can only code High or Low transactivity once per episode, so for example not multiple time Low transactivity although you have seen it more than once.

* Look at how long of the episode is Off task, if it is more than 30 seconds code Off task

Explanation of the coding process to come to an interrater agreement:

To come to an interrater agreement with a second coder four rounds of coding where done. After the first round of two documents with a low level of agreement a calibration session was done with the two coders and one of the researchers/supervisors to adjust the coding scheme. Then the second coding round started with again two documents. After this adjustment there was still a low agreement. The coders had done another calibration session with another supervisor and adjusted the coding. Then the third round of coding started with both coders coding three documents, here the interrater agreement was close to the desired agreement. The researcher saw that there was a difference in how the second coder implemented the codes, the second coder removed the code *low transactivity*

when *high transactivity* was seen in the episode. This was quite logical to do but described differently in the coding scheme. Therefore the coding scheme was adjusted and only the first coder recoded the three documents.

Table 1

Categories of social modes for coding the episodes

Categories	Description	Examples
On task	Everything that is about the consultation practice they have just had	"My feeling about the consultation was quite good today…''
Off task	Everything that is not about their consultation or feedback	"Do we need to stay in this room? Wait I will just check this in the roster"
Low transactivity	Externalizing their ideas to the group or conversational partner OR Asking for more information OR Agreeing without further discussion	"I think it is important to make a summary at the end" "How would you make a summary then?" "Yes I understand what you mean"
High transactivity	Taking over, integrating and applying the perspectives OR Disagreeing, modifying or replacing the perspectives	"Oh I thought I only had to make a summary after the first part but I think you are right, next time I will end the consultation with a summary" "I don't that it is an good idea to make a summary at the end I think it's better to ask the SP if he or she has questions after your summary. This way you will end more together with the SP"

Appendix 4 coding process round 2 SPs

Coding scheme and process 2 for the SP
1. First, when the SP talks in an episode the coder asked the question, what is the SP doing?
2. From the answers of this question make the quotations. An example of this is when an SP says to the peers: "Perhaps you have more substantive feedback" Then the quotation would be "SP gives the turn to the peers" and this falls under the theme "Gives the turn".
3. Print these quotations and select the different themes.
4. Repeat the first three steps until all quotes are into a theme

*One exception was made, the code "SP says nothing" was a theme on itself without taking these steps.

Manual for the themes

Belangrijk/goed/tips: De SP benoemt wat belangrijk is, geeft tips hoe studenten bepaalde dingen kunnen doen. SP zegt wat goed is. Vaak gaat dit over het algemeen wat er goed is zoals hoe een samenvatting gegeven wordt maar het kunnen ook tips voor student 1 zijn hoe hij/zij iets beter kan doen. Dit is niet uit de ervaring van de patiënt maar uit het algemene 'Wat goed is om te doen'

Verbeterpunten/valkuilen: SP benoemt hier wat student(en) **niet** moeten doen, anders moeten doen of wat vaak bij studenten mis gaat

Contact peers: SP gaat in op peers, gaat door op wat peers gezegd hebben of maakt contact met de peers

Ervaring Patiënt: SP geeft aan hoe hij/zij het consult heeft ervaren, wat dit voor deze patiënt betekende, hoe het voelde, hoe het in het consult overkwam en hoe het consult over gekomen is. Kortom: hoe deze patiënt het consult ervaren heeft of hoe het in het algemeen is om patiënt te zijn

Gaat mee in gedachten student1: SP gaat mee in de denkwijze van student1 tijden de feedbackronde en gaat hier op door of bevestigt de gedachten.

Geeft beurt aan: SP geeft de beurt aan peers of aan student1 door te checken wat hij/zij er van vind(t)(en)

Stelt vraag: SP stelt een vraag aan student1 en/of peers

Toekomst/wat als: SP benoemt wat hij zou doen wanneer student iets zou doen in een consult, SP benoemt wat 2^e en 3^e jaars zouden moeten, SP geeft aan hoe dat in assessment zal zijn. Kortom de SP geeft aan hoe het in de toekomst zou zijn en/of hoe hij zou reageren op bepaalde acties van een student
Uitleg casus/rol: SP legt uit hoe deze casus was, waarom ze bepaalde dingen zei in deze casus, waar het in deze casus om gaat, wat ze nog meer had kunnen vertellen of deed in haar rol. Kortom SP legt uit specifiek hoe de casus in elkaar zat

SP zegt niks: SP zegt gedurende de episode niks

SP off task: SP zegt een gehele spreekbeurt niet taak gerelateerde dingen. Het gaat bijvoorbeeld alleen maar over wat er hierna gebeurd of hoe laat het is.

Appendix 5 overview of themes in high transactivity

CASENO	SP	Ervaring patië	Verbeterpunten/ valkuilen	Wat belangrijk/goed is/tips	Contact peers	Stelt vraag	SP zegt niks	Uitleg casus/rol	Geeft beurt aan	Gaat mee in gedachten student1	SP off task	Toekomst/wat a	On task: High trans activity
Q2_6	2	0	0	0	1	0	0	0	0	0	0	0	1
Q2_8	2	0	0	0	0	0	0	0	0	0	1	0	1
Q4_5	4	0	1	0	0	0	0	0	0	0	0	1	1
Q6_1	6	0	0	0	0	1	0	0	1	0	0	0	1
Q7_1	7	0	0	0	0	0	1	0	0	0	0	0	1
Q8_4	8	0	0	0	0	0	1	0	0	0	0	0	1
Q8_5	8	0	0	0	0	0	1	0	0	0	0	0	1
Q9_6	9	1	1	0	1	0	0	0	0	0	0	0	1
Q10_2	10	1	0	0	1	0	1	0	0	0	0	0	1
Q10_3	10	1	1	0	0	0	0	0	0	0	0	0	1
Q10_4	10	1	1	0	0	0	0	1	0	0	0	0	1
Q10_5	10	0	0	0	0	0	1	0	0	0	0	0	1
Q10_6	10	1	2	0	0	0	0	0	0	0	0	0	1
Q10_7	10	0	1	0	0	0	0	0	0	0	0	0	1
Q11_4	11	0	1	0	0	0	0	0	0	0	0	0	1
Q12_3	12	0	0	1	0	0	0	1	0	0	0	0	1
Q13_3	13	0	0	1	0	0	0	1	0	0	0	0	1
Q13_4	13	2	0	0	0	0	0	1	0	0	0	0	1
Q13_6	13	0	0	1	0	1	0	0	0	1	0	0	1
Q13_7	13	0	2	0	0	0	0	1	0	0	0	0	1
Q13_8	13	0	1	0	0	0	0	0	0	1	0	0	1
Q13_10	13	1	0	0	0	1	0	0	0	0	0	0	1
Q14_1	14	1	0	0	0	1	0	0	0	0	0	0	1
Q14_4	14	0	0	0	1	0	0	0	0	0	0	0	1
Q14_5	14	0	1	0	2	0	0	0	0	0	0	0	1
Q15_3	15	0	1	1	0	0	0	1	0	0	0	0	1
Q15_4	15	0	0	1	0	0	0	0	0	1	0	1	1
Q17_2	17	1	1	0	0	0	0	0	0	0	0	0	1
Q18_4	18	1	0	1	0	2	0	0	0	0	0	0	1
Q19_3	19	0	1	1	0	0	0	0	0	0	0	0	1
Q19_4	19	2	0	0	0	0	0	0	0	0	0	0	1
Q19_5	19	0	1	1	0	0	0	1	0	0	0	0	1
Q19_6	19	0	0	1	1	0	0	0	0	0	0	0	1
Q19_7	19	1	1	0	0	0	0	0	0	0	0	0	1
Q19_8	19	0	0	0	1	1	0	1	0	1	0	0	1
Q20_2	20	1	2	0	0	0	0	0	0	1	0	0	1

Appendix 5 overview of themes low transactivity

CASENO	SP	Ervaring patië	Verbeterpunten/valkuilen	Wat belangrijk/goed is/tips	Contact peers	Stelt vraag	SP zegt niks	Uitleg casus/rol	Geeft beurt aan	Gaat mee in gedachten student1	SP off task	Toekomst/wat a	On task: High trans activity
Q1_1	1	2	0	0	0	1	0	0	1	0	0	0	0
Q1_2	1	2	0	0	0	0	0	0	1	0	0	0	0
Q1_3	1	0	0	1	0	0	0	0	0	0	0	0	0
Q3_1	3	1	0	0	0	1	0	0	0	0	0	0	0
Q3_2	3	1	0	0	0	0	0	0	0	0	0	0	0
Q3_3	3	0	0	0	0	0	1	0	0	0	0	0	0
Q3_4	3	0	0	0	0	0	1	0	0	0	0	0	0
Q5_1	5	1	0	0	1	0	0	0	1	0	0	0	0
Q5_2	5	1	0	0	0	0	0	0	0	0	0	0	0
Q5_3	5	0	0	0	0	0	1	0	0	0	0	0	0
Q5_4	5	0	1	1	0	0	0	0	0	0	0	0	0
Q16_1	16	2	0	0	0	1	0	0	0	0	0	0	0
Q16_2	16	1	1	0	0	0	0	2	0	0	0	0	0
Q16_3	16	0	0	1	0	0	0	0	0	0	0	0	0
Q16_4	16	0	0	0	0	1	0	0	0	0	1	0	0