

Using linguistic methods in clinical communication education

Shuangyu Li[1], Fatma Said[2], Bernadette O'Neill[3], Clyde Ancarno[4], Maja Niksic[5]

Corresponding author: Dr Shuangyu Li shuangyu.li@kcl.ac.uk

Institution: 1. King's College London, 2. University of York, 3. King's College London, 4. King's College London, 5. King's College London

Categories: Medical Education (General)

Received: 21/10/2016

Published: 03/11/2016

Abstract

Introduction:

Analysis and reflection are important components of clinical communication learning in undergraduate medical education. Current medical consultation models do not provide an effective means to analyze interaction during consultations, compromising a conversational approach to consultations. This paper introduces a conversational analytic framework: The Clin-Com Tool (CCT), drawing on interactional linguistics.

Methods:

17 medical students and six communication tutors took part in an educational intervention. A mixed-methods evaluation was conducted to compare 1) participants' abilities to analyze consultations pre- and post-intervention, and 2) elicit their perspectives of learning and using the CCT.

Results:

The findings showed an improvement in participants' analytic skills in the post-intervention test ($p < 0.044$, 95% Confidence Interval). Participants felt that the CCT heightened awareness of interactional features and socio-cultural effects on communication, and provided a systematic approach to analysis using a set of common language.

Conclusion:

The CCT emphasizes the development of students' critical ability to judge and act upon the constantly changing interactional communicative situations. It transforms intuitive feelings into systematic and evidence-based analysis of interaction, enabling the development of more strategic and conversational communication with patients. The

Tool can become a useful addition to other communication and consultation models used in undergraduate medical education.

Keywords: Clinical Communication, Undergraduate medical education, Interactional linguistics, Analysis and reflection

Introduction

The most common method of teaching communication in doctor-patient consultations in undergraduate medicine is through experiential learning, using simulated patients (SPs) to reproduce clinical scenarios (Silverman et al. 2013). Medical students utilize self-reflection and feedback from colleagues and tutors as a means of learning to help each other understand the communicative outcomes of their interactions with SPs. Reflection and feedback relies on students and tutors' ability to analyze the interaction and how doctor and patient co-construct meanings and negotiate for understandings. However, current communication and consultation models tends to see verbal communication in a rather static manner. For instance, expression of empathy is usually reduced to simply saying 'I'm sorry to hear that' or 'It must be difficult for you' and may not be offered at a contextually relevant moment in the conversation. This limits the understanding of what counts as effective communication and restricts the development of students' conversational approach to medical consultations (Mendick et al. 2015, van den Eertwegh et al. 2013, Wouda and van de Wiel 2013). Dahm and colleagues (2015) reveal that educators are able to rely on their tacit intuition to identify communication breakdowns in simulations and where medical students find it difficult to construct effective communication. However, educators involved in their study were less likely to articulate the underlying issues or suggest specific remedies in their feedback. This was changed after Dahm and colleagues introduced applied linguistic methods to the educators, who then reported to be able to provide more detailed feedback specifically on the linguistic features to help students understand the underpinning problems and consider strategic changes to improve communication outcomes.

A growing number of applied linguists have begun to explore how to transfer their research outcomes and methodologies into professional communication training (Dahm et al. 2015, Heritage and Maynard 2006, Li 2013, Roberts and Sarangi 2005, Stokoe 2011, Wilkinson 2011). They lend a unique lens through which doctor-patient consultations are viewed as creative and dynamic co-constructed interactions which at the same time can be systematically analyzed and accounted for (Agha 2007, Ahearn 2012, Blommaert 2005, Duranti 1997, Rampton et al. 2015). In our view this perspective compensates the limitations of the medical consultation models. It helps to avoid a 'tick-box' approach to consultations, and enhances learners' critical ability to judge and act upon the constantly changing communicative situations.

As scholars and educationists continue to explore ways of achieving patient-centered care in culturally and linguistically diverse societies (Roberts 2012, Swinglehurst et al. 2013), there is a growing demand for new teaching methods that foster a more holistic view of consultations as a creative and dynamic interactional process (Salmon and Young 2011, Skelton 2011). In attempt to meet the demand, we developed the Clin-Com Tool (CCT), drawing on the analytical methods in Interactional Linguistics (Kern and Selting 2013).

Interactional linguistics (IL) and CCT development

Interactional linguistics (IL) analyses linguistic structures as a resource for the accomplishment of actions in social

interaction ([Kern and Selting 2013](#)). It draws on several disciplines, including *conversation analysis* (study of systematic sequential organization in talk-in-interaction), *discourse analysis* (study of language as discourse in context), *pragmatics* (study of language and social actions it entails) and *linguistics* (study of language structure). Its aim is to understand how language 'is both shaped by and itself shapes the actions it is used for' ([Kern and Selting 2013: 1](#)).

We convened an interdisciplinary team, consisting of: clinical communication lecturers, linguists, a clinician, a psychologist, medical students and an English language teacher, to identify relevant IL analytical concepts and adapt them for clinical communication education. The CCT consists of nine analytical terms under three themes, a) interactional analytical theme, b) discourse analytical theme and c) linguistic analytical theme. Below we explain why we selected these terms, what they are, and how they can be used in analysis.

Theme 1 Interactional analytical theme

Effective management of the interaction is the means of conducting a patient-centered consultation ([Mead and Bower 2000](#)) and requires a conversational approach. This requires the doctor and patient to *take turns* to talk so they *co-construct* and negotiate for meanings and understandings as the conversation unfolds. Therefore, the three analytical terms the first theme introduces are *turn-taking*, *co-construction* and *recipient design* ([Heritage and Maynard 2006](#)). They constitute a systematic way of analyzing an interaction. We devised a set of trigger questions to indicate what each term analyses (See Table 1 below).

Theme 2 Discourse analytical theme

There are four analytic terms under this theme, namely *contextualisation cues* ([Gumperz 1982](#)), *framing* ([Goffman 1974](#)), *positioning* ([Davies and Harré 1999](#)) and *social action* ([Drew and Heritage 1992](#)). They extend the analytic scope of Theme 1 to allow more detailed investigation. To select the relevant terms among many in Interactional Linguistics, we listed out the challenges our students report to encounter in communication learning. Not all challenges can be addressed by a detailed linguistic analysis but we identified the following 'conundrums', which we think the selected terms may address.

Conundrum 1: what is a *cue*? 'Picking up cues' and 'being responsive to cues' are commonly mentioned by teachers and students in their feedback when discussing how to achieve attentive listening and empathy. However, cues are mainly referred to as a unilateral procedure where the patient gives cues and the doctor picks them up. Cues, however, are interactive and reciprocal. The CCT brings in Gumperz's *contextualisation cues* to provide a more comprehensive understanding. Gumperz (1982) defines cues as verbal and non-verbal communicative signals speakers constantly give, and listeners seek to understand in conversations. The reciprocity means students need to learn not only to pick up cues but also use cues strategically.

Conundrum 2: how to provide a structure in a medical consultation? Students are taught to consult following a structure from the opening to the closing with several milestones to achieve in between ([Silverman, Kurtz and Draper 2013](#)). Although these milestones are presented in sequential phases, they do not always occur in sequence in real consultations. This makes it hard for students to always know which phase they are in, let alone to provide a structure for the patient. The CCT therefore introduces the concept of *framing*. *Framing* is about the context, in which meaning is produced and understood. Each consultation phase constitutes a frame, making certain topics relevant and others less so in the conversation. Within each phase, there are a series of topics, which constitute sub-frames and their respective contexts. Understanding the patient's frames can help students understand what topic and frame the patient is on so that they can be more strategic when negotiating for a structure.

Conundrum 3: How do I relate to patient's experiences? Patient-centeredness means doctors need to incorporate patient's narratives into the consultation, making both bio-medical and lifeworld topics equally relevant. Conversations about the latter rely on the doctor's own lifeworld experience, which some students are reluctant to utilize in a professional context. This, nevertheless, hinders empathy. The term *positioning* means the viewpoint from which people interpret as well as produce meanings in a conversation. Positioning is usually determined by the social and conversational roles interlocutors undertake. Social roles can be that of a doctor, patient, mother, daughter, sister, etc. Conversational roles can be that of a listener, speaker, eavesdropper, etc. They all contribute to meaning making. Positioning allows students to relate themselves to the wide range of viewpoints patients take.

Conundrum 4: What do they want? We do not always say what we mean. Saying 'It's cold in here' may not be a statement of a fact but rather a request for someone to close the window. When people talk, they use language to accomplish *social actions* (e.g. greetings, questioning, comforting, diagnosing, etc.). Language is the vehicle of actions. Analyses of language use in interaction provide evidence for interpreting social actions being conducted with the language.

Theme 3 Linguistic analytical theme

The last theme consists of two terms, *register* ([Fromkin and Rodman 1998](#)), and *facework* ([Brown and Levinson 1987](#)). They investigate the relationship between language structure and achievement of *social actions*. This section can be particularly useful for non-native English speakers to better understand how the English language functions in social interactions. Such knowledge may as well be useful for native speakers to turn intuitive feelings into more systematic understanding, especially when communication breakdowns are complicated (see examples in [Dahm et al., 2015](#)).

In order to see if the use of the CCT can improve people's ability to analyze consultations, we conducted an educational intervention and evaluation. The aims were to elicit 1) if the CCT improved participants' analytical skills, and 2) participants' experience of using the CCT.

Table 1 CCT analytical themes

Theme 1: Interactional Analytical terms	
Term	Trigger questions
1. Turn-taking	(a) Did the doctor identify the right place to pass the turn to patient as well as taking over from the patient? <ul style="list-style-type: none"> • To avoid overlap, which may discourage patient to disclose difficult information • To take turns back when necessary (b) Did the doctor identify the right lengths of turns? <ul style="list-style-type: none"> • Has the doctor been talking too much or too little? • Has the patient been talking too much or too little that the doctor needs to support them?
2. Co-construction	<ul style="list-style-type: none"> • Has the doctor encouraged and facilitated patient's participation/co-construction? • Has the doctor adapted to Pt's preferred communication style? • Has the doctor negotiated understanding?
3. Recipient design	<ul style="list-style-type: none"> • Is what the doctor says in response to what the patient is saying? • Has the doctor taken patient's words on board?
Note: If these are not realized, then the consultation is highly unlikely to be successful	

Theme 1 helps you analyze whether a consultation is constructed as an interactional conversation or not. To further analyze how the interaction has been conducted and whether the interactions are successful we need to go deeper to analyze the conversations through Themes 2 and 3 next.

Theme 2: Discourse analytical themes

Term	Explanation
Contextualization cues	<p>Are the subtle signs a speaker gives the listener during conversation. They can be both verbal (e.g. actual words being said, intonation, volume of speech, speed of speech) and non-verbal (e.g. gaining or losing eye contact). They are the means by which speakers signal, and listeners interpret:</p> <ol style="list-style-type: none"> 1. What the activity is 2. How semantic content is to be understood 3. How each sentence related to what precedes or follows? It is up to the listener to pick these up accurately and to respond accordingly.
Framing	<p>Is an inevitable process during which we put things into context. It can be a situational context or a topical context, either abstract or specific. We make sense for and of each other by putting words into such a context. It determines how you, as a doctor, communicate with others and influences how you select your recipient design in a specific phase or atopic during the consultations.</p>
Positioning	<p>Is the taking on of different roles during an interaction, for example, a doctor has different roles from a patient and thus also different positions. Positioning can change during the conversation and people may take up multiple positions.</p>
Social Action	<p>Conversation is the way we perform social actions (e.g. asking a question, clarifying a misunderstanding, restoring rapport, negotiating, diagnosing) in order to fulfil certain social functions (e.g. providing care for patient, or seeking healthcare).</p>

Theme 3: Discourse Analytical Theme

Term	Explanation
Register	<p>Is "a stylistic variant of a language appropriate to a particular social setting..." (Fromkin and Rodman, 1998:535). A clinical encounter is both a mixture of high formal and low informal registers. However, one would avoid very informal language (e.g., swearing, certain forms of slang), and very formal language (e.g. Latin words or other words in particular to medical professionals). It is very likely that one would use a lower register to talk to a patient, however, a well-informed patient may prefer to use a higher register.</p>
Facework	<p>Has to do with the social image a person presents and/or is thought to present to another during conversation. It can only be determined by a fellow speaker. In reality, a person is constantly working to project a positive face as well as helping others to maintain their own face, hence the term "facework" by definition. "The term face may be defined as the positive social value a person effectively claims for himself...during a particular contact [with others] (Goffman, 1955:213). It is something that is emotionally invested and that can be lost, maintained or enhanced, and must be constantly attended to in interaction. In general, people cooperate (and assume each other's cooperation) in interaction, such cooperation being based on the mutual vulnerability of face (Brown & Levinson, 1987). One can also be said to "save face" for themselves or their interactants, and it is an important part of maintaining positive social relations (i.e., to avoid conflict). Saving face is often achieved through politeness maxims (See below)</p>

Politeness	<p>You are probably familiar with the notion of being polite. But do you know there are two types of politeness each with a set of subsequent strategies in the English language?</p> <ul style="list-style-type: none"> • Negative Politeness: Makes a request less infringing such as "if it's not too much trouble"; it reflects a person's right to act freely. In other words deference • Positive Politeness: Seeks to establish a positive relationship between parties. Respects a person's need to be liked and understood.
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Methods

Educational intervention and participants

Approved by the King's College London Ethics Committee (BDM/13/14-64), we carried out a 1.5-hour face-to-face workshop and a one-hour self-directed e-learning for 17 medical students in clinical years (years 3-5) and six communication trainers. The workshop consisted of an introduction to the CCT and group exercise to analyze videoed consultations using the CCT. The e-learning contains an interactive module for learning the CCT, a collection of interactive exercises, a discussion platform and a self-evaluation tool.

Evaluation and data analysis

To understand the changes of participants' analytical skills, we asked them to analyze how well the clinician has structured the consultation, built and maintained rapport, established understanding, demonstrated empathy and patient-centered approach in a video-recorded GP consultation. The same test was done before and after the intervention. We then compared and contrasted participants' pre- and post-intervention responses. Two authors (SL & CA) evaluated the quality of the participants' pre- and post-intervention responses. Using qualitative data analysis software (NVivo 10), they categorized these responses into five categories, namely, excellent, good, erroneous, ambiguous and superficial (see Table 2).

Table 2 Definitions of evaluation categories

Evaluation Nodes	Definition	Sample analyses
Excellent	Analyses that interpreted clinical and communicative outcomes accurately by clear and sufficient reference to language use in interaction.	"Good co-construction and turn-taking. Dr is providing detailed explanations, and she is adopting her language so that the Pt can understand her better. The Dr is encouraging the Pt to ask for clarifications, and she is very good in negotiating for understanding. What the Dr said was a good response to what the Pt. was saying (asking) - good recipient design."
Good	Analyses that interpreted clinical and communicative outcomes accurately by clear and mostly sufficient reference to language use in interaction.	"There is a clear structure to the consultation, yet the clinician is clearly attentive and responsive to the patient's needs, communication style, and emotional disposition."

Erroneous	Analyses that interpreted clinical and communicative outcomes inaccurately. There was reference to language use in interaction, but it was either incorrect or insufficient.	"Very poor. The clinician focusses far too much on her own contributions to the conversation rather than trying to build more systematically on what the patient says."
Ambiguous	Analyses referred to language use in interaction but the relationship between it and clinical and communicative outcomes was unclear.	"There was not much negotiation."
Superficial	Analyses referred to language use in interaction but such reference lacked sufficient explanation.	"Understands the correct cues, good turn-taking and co-construction as well as face work and register led to very good rapport."

Our comparative analysis identified 155 and 168 relevant responses pre- and post-intervention. Because of the small number of items in some categories (see Table 3), the quantitative researcher (MN) merged the five response categories into three broader categories namely, *correct* (originally Excellent, Good), *incorrect* (originally erroneous,) and *neutral* (originally term related, ambiguous and superficial), in preparation for statistical analysis. MN then compared the frequency of responses of each participant for every CCT analytical term they used in their responses that have already been categorized in the three evaluation categories.

We added up the percentage of correct, incorrect and neutral responses for each participant in Pre-intervention and Post-intervention responses (see Table 3). Wilcoxon matched-pairs signed-ranks test was used to assess if there were statistically significant differences in the frequency of correct, incorrect and neutral responses in Pre-, and Post-intervention responses.

To assess students and tutors' experiences of learning and using the CCT, we devised two questionnaires with open ended questions. Two authors (FS & BON) conducted thematic analysis of participants' responses. All authors involved in data analyses are clinical communication trainers themselves.

Results

Measureable improvement of analytic skills

We found that the overall reference to language use in participants' responses slightly increased in the post-intervention, regardless of their quality. The difference between *correct responses* in pre-, and post-intervention reached borderline significance ($p < 0.044$, 95% Confidence Interval). Although the *incorrect responses* decreased post-intervention, this difference was not significant ($p = 0.701$). We found almost no change in the number of neutral responses ($p = 0.364$). This may be attributed to the difficulties of learning and using the CCT, which were also reflected in participants' own words, as shown later in the paper.

Table 3 Pre- and Post-intervention use of terms by the total participants ($n = 23$), by evaluative categories, three main themes and the number of participants reporting each term

	Intervention	Pre-intervention					Post-intervention						
Themes	Terms used	Correct	Incorrect	Neutral	Total	Theme Total	Participants	Correct	Incorrect	Neutral	Total	Theme Total	Participants
Discourse	Cues	11	4	1	16	78	13	19	3	0	22	67	11
	Framing	7	12	3	22		13	10	6	4	20		17
	Politeness	0	2	0	2		2	1	1	0	2		1
	Positioning	0	3	0	3		3	1	2	0	3		3
	Register	1	1	0	2		2	2	0	0	2		2
	Repair	0	0	0	0		0	0	0	1	1		1
	Talk as action	16	16	1	33		16	9	6	2	17		11
Interaction	Co-construction	7	11	3	21	59	13	16	11	4	31	88	18
	Recipient design	16	8	3	27		13	22	16	1	39		17
	Turn taking	6	5	0	11		8	12	4	2	18		13
Linguistics	Linguistic	6	10	2	18	18	13	6	6	1	13	13	10
	Total	70	72	13	155	155		98	55	15	168	168	

The responses that were evaluated as good increased by 13% in the post-intervention evaluation; and ambiguous analyses decreased by 14% (Table 4). Overall, there were about 8% responses deemed as incorrect, and the results did not change after the intervention.

Table 4 Pre- and post - intervention comparison results

Evaluation category	Pre-intervention	Post-intervention
Correct	45.1%	58.3%
Incorrect	8.4%	8.9%
Ambiguous	46.4%	32.7%
Total	100.0%	100.0%

Participants' perspectives of the CCT:

Insights into participants' experiences of using the CCT were elicited via the free text comments section of 15 student questionnaires. We asked the following four themed questions:

1. How do you usually analyze communication in a consultation when you reflect on your own communication or give feedback to others?
2. Do you think this analytical tool will change the way you analyze communication in the future? If so, in what way?
3. How would you use this new analytical tool in your future learning and development of your clinical skills?
4. How do you think this tool can inform your clinical practice?

Responses to Q. 1 revealed that students' 'usual' methods of analyzing communication centered on observing for specific communication skills and processes (n = 5) or use of the 'history-taking' structure (n = 5) taught as part of the undergraduate communication curriculum. The skills and processes referred to included rapport, listening,

expressions of empathy, and observations of 'body language'. Five students appeared to have limited or no systematic approach, instead focusing on whether specific information was elicited (without reference to the process of how this was achieved) or in one example, on 'gut-instinct'.

In response to Q. 2, 11 students confirmed that they thought using the analytical tool would change the way they analyze communication in future, four were unsure and one student did not think they would use it. Of the 11 positive responses, students referred to having a heightened awareness of specific interactional features (e.g. turn-taking, framing, co-construction) and of adopting the conversation analytic terms to articulate their analysis. The students, who were unsure, cited the complexity of the tool and the time needed to become familiar with it as the main challenges to its use. Overall, the majority of students commented on the usefulness of the tool in providing a more structured and systematic approach to analysis.

All 15 students identified how they could use the tool for future learning and development (Q. 3). Key themes included using the tool to interpret and improve upon their own skills (n = 5) and to develop the habit of using the tool in clinical practice (n= 5). Other comments referred to using the tool to become more aware of the intricacies of communication such as positioning, pauses, cues (n = 3) and using the language of the tool to provide feedback to others. One student expressed they would use the tool for OSCE preparation by recording and analyzing practice OSCE stations.

13 students provided clear examples of how they thought the tool could inform their clinical practice (Q. 4). These spanned a range of areas such as responding flexibly during interactions, awareness of socio-cultural factors and being able to offer structured feedback to peers. Two students were unsure of how the tool could inform future practice other than referring to 'turn-taking' and staying 'focused'. Five students commented on having difficulty learning and applying the tool due to the level of detail and content it contained. Sample responses can be found in Figure 1.

Additional written feedback was gained from five clinical communication tutors, who participated in the training. Two tutors had a disciplinary background in linguistics, one in psychology and two in nursing. When asked if the tool would change the way they analyze communication, responses included that it would provide additional points for consideration and language to aid analysis, as a way to systematize feedback and deepen learning. Tutors' responses to the question of how the tool might be used in future teaching included asking students to revise the tool prior to experiential teaching, as an aid to post-teaching reflection and for reference. Four of the five tutors stated that the tool could be used as an additional means, rather than as an alternative to their 'usual' method.

Figure 1: Samples of student and tutor feedback

Students:

"This analytical tool is thorough. It gives someone starting from scratch a framework... and it allows people with pre-existing system to identify holes in their analyses." (std 4)

"I will pay more attention to think about HOW to talk with the patient rather than just WHAT to talk with patient...It is very common that we just think about what kind of things need to be covered during consultations, like ticking all the boxes, but not too many thoughts about how should we achieve that." (std 16)

"I feel I need to spend more time with the material because it is a new approach and not immediately intuitive." (std 5)

"The face-to-face learning ... [brought] the analytical tool to life, considering how technical much of the language around understanding the analytical tool was. (std 8)"

Tutors:

"What I liked the most is that the tool does not shy away from the complexity of such type of interactions. This does mean that aspects of the tool will have to be further developed but I strongly believe it will be of great use to medical students." (Tutor 4)

"I don't think it is an alternative, I think it is an addition. It would be rather complex to just use this tool as a guide" (Tutor 2)

"Yes I do think that the tool offers a great opportunity for me to systematise my feedback to students. I would adapt it to the level of students ... It offers the opportunity to examine consultations more systematically while acknowledging the complexity of communication in the context of healthcare". (Tutor 3)

Discussion and conclusion

We developed the Clin-Com Tool (CCT) to assist more systematic analyses of interactions in clinical contexts from a conversational perspective. After teaching 17 students and six communication tutors to use the CCT, we found that their ability to analyze communication in medical consultations improved. Participants felt that even with little or no linguistic background, they were able to use the CCT to analyze recorded consultations more effectively. Most suggested that they felt confident to use the tool to also analyze live interactions and improve their clinical practice or teaching. This, however, was not tested in this study although we believe that with increased familiarity with the tool, such use may be possible. Video reflection has been used by many UK medical schools in addition to the conventional method of role-play in clinical communication training. We think that this method should be adopted by more medical schools in that scrutinizing the nitty-gritty of the turn-by-turn conversation provides a 'slow motion' view of communication, which shows us what's normally overlooked and yet plays a significant role in social interaction ([Rampton 2001: 97](#)).

We recognize that our evaluation study has several limitations. First, it draws on a small number of participants and an even smaller number of tutors. To mitigate this limitation, we adopted two evaluation methods to analyze data, which provided a more reliable understanding of whether and how participants' analytical abilities have changed as a result of using the Tool. The data were analyzed both qualitatively and quantitatively to allow for a comprehensive understanding of the changes incurred by the introduction of CCT. We did not distinguish the differences among student year groups or between students and facilitators. Future studies with more participants could explore the differences, taking into account participants' different experiences in learning and teaching. The only international student suggested that the Tool could be particularly useful for them. This deserves further investigation.

Reflection and analysis are at the center of the epistemology of professional practice ([General Medical Council 2009](#), [Schon 1983](#), [Schon 1987](#)). Analysing language use in interaction is quintessential in clinical communication learning. It can help learners develop a critical ability to judge and act upon the constantly changing interactional communicative situations they find themselves. The CCT was developed to support the development of a more systematic analysis and reflection so that surface learning becomes deep learning, allowing effective knowing-in-action ([Kaufman and Mann 2014](#), [Moon 1999](#)). Focusing on the features of language use in interaction, the CCT puts forward the view of clinical communication as a creative and dynamic interactive process interaction, allowing students to sustainably and continuously develop their creativity and critical ability to manage medical consultations.

Take Home Messages

1. Analysis and reflection are important skills for undergraduate medical students to learn clinical communication.
2. Interactional linguistics can provide a systematic framework for developing such skills.
3. Improving trainees' understanding of interactional mechanism of communication improves patient-centred approach to consultations.
4. Students and faculty members require longitudinal support which can be provided via e-learning.

Notes On Contributors

Shuangyu Li, PhD, SFHEA, is a Lecturer in Clinical Communication. He leads on Clinical Communication (phases

1 &2) and Cultural Competence in MBBS curriculum at King's College London School of Medical Education, London, the UK.

Fatma Said, PhD, was a Research Assistant for this reported Project at KCL; and now is a Research Associate in Applied Linguistics at the University of York, York, the UK.

Bernadette O'Neill, EdD, RGN, RMN, is a Lecturer in Clinical Communication and Deputy Head of Clinical Communication in MBBS curriculum at King's College London School of Medical Education, London, the UK.

Clyde Ancarno, PhD, is a Lecturer in Applied Linguistics at King's College London School of Education, Communication & Society, London, the UK.

Maja Niksic, PhD, MPil, MSc, was a PhD student at King's College London Cancer Studies Research Division, the UK; and is now a Research Fellow at London School of Hygiene and Tropical Medicine Department of Non-Communicable Disease Epidemiology, London, the UK.

Acknowledgements

We would like to thank King's College London for funding this project. We particularly thank the medical students and clinical communication tutors who participated in the study, without whom this project would not be possible.

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Appendices

Declaration of Interest

The author has declared that there are no conflicts of interest.