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Profiling physiotherapy students' interactions patterns in history taking

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ABSTRACT

In physiotherapy education, history taking – in which a physiotherapist interacts with a patient to determine a prognosis – requires a set of communication skills which can be challenging for most student physiotherapists. One way to better understand the struggle that the students face is to examine the language and function of the interactions they use. This paper aims to investigate the way students perform their communication skills in history taking role-play. This study employed a qualitative discourse analytic method following the interpersonal discourse of NEGOTIATION, genre and register frameworks from the systemic functional linguistics. The data were obtained from a recorded students' role-play for their final assignments in a physiotherapy class. These data were then analysed by following the discourse analytic frameworks to map the structures and function of their interactions. The findings reveal that the students structure history taking stages similarly, while the length of exchange structures they build to gather information show differences in which skilled students tended to be more extensive in the interactions. The findings suggest that making explicit of the stages and move options may provide better awareness of the available choices the students can have in the history taking interactions.

Keywords: Discourse analysis; history taking; interactions; systemic functional linguistics; physiotherapy education

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INTRODUCTION

In physiotherapy education, communication skills are significant for students to acquire as an important preparation for their future practices. These communication skills are often taught in a unit which involves a complete series of the diagnostic process, a necessary step in providing treatments for patients. Phases of the diagnostic process vary among studies. One study (Hendriks et al., 2000) identified eight phases including: data referral examination; history taking; physical examination; diagnosis formulation; treatment plan formulation; treatment; evaluation of the patient; and actions and treatment conclusion. Another study (Dutton, 2011) proposed five phases which include the patient examination; data evaluation and problem identification; diagnosis determination, prognosis and plan of care determination; and intervention. In the study reported here, the study program adopted seven phases of diagnosis in the curriculum to be taught for the students. These are: 1) history taking (or anamnesis); 2) physical examination; 3) diagnosis; 4) plan of care; 5) intervention; 6) documenting; and 7) evaluation. Those studies indicated that history taking always occurs as a distinct phase or element in the diagnostic process, marking its significant position.

As a step determining the course of actions of the treatment goals in the diagnostic process, the importance of history taking has gained a considerable attention even across studies in other health disciplines. Halkett et al. (2011) show

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communication skills workshops are recommended to help improve history taking skills for radiography students. In clinical medical education, Bachmann et al. (2017) raised a concern regarding lack of proper attention in history taking during consultations with young doctors. Another study in medicine recommended the involvement of poetry to teaching communication for medical students to make them aware that one word may have different meanings and that 'medical history taking is an interpretive act' (Maretic & Abbey, 2021, p. 35). Other studies outlined the importance of effective interaction skills in consultations during history taking and delivering news or results to patients (e.g. Hulsman et al., 2010; Jenkins et al., 2015; Stevens et al., 2006). All of these studies suggest that a strong connection need to be built between communication skills and history taking.

Nevertheless, doing history taking can be a challenging process for several reasons. First, in a clinical setting history taking is usually carried out one time. This means that the physiotherapist who has just met the patient needs to obtain as much information as possible regarding the patient's reason for a visit and regarding his past experience leading to pain or injury, for example. In addition, from the relatively short amount of time, the information provided by patients in the history taking should be sufficient to decide an initial diagnosis and plan of care, making effective interactions essential.

Questions arise. Is there a way to prepare students for their professional roles in physiotherapy practices, particularly history taking? What roles do they play to develop effective interactions with patients from various backgrounds? What kinds of teaching resources can be used for modelling physiotherapist-patient interactions? Our proposed answer is to carry out a cross-disciplinary study approaching the field of physiotherapy education through the lens of linguistics, particularly systemic functional linguistics. This relatively novel approach is considered significant for a number of reasons. First, this approach allows us to have a closer look at patterns of language the students use to structure their physiotherapist-patient talks in their early career. This will serve as a basic tenet to help them improve and prepare for better communication skills. Secondly, the study places an important role of linguistic studies to approach the field of physiotherapy. Systemic functional linguistics, in particular, would reveal the function of language for a particular purpose in a particular situation involving different medium, target audience and topics in a greater detail necessary to examine language use in history taking. Finally, in the context of Indonesia, the use of linguistics to address issues in physiotherapy or healthcare communication is a growing need. This is partly due to awareness of interaction skills as an inseparable element of communication (cf. Indah, 2021; Rachmawati et al., 2021).

Literature review

Preparing the students for history taking skills in physiotherapy is indeed a significant step. This is the main reason that the unit preparing them for the practice has been designed to include a theoretical foundation followed by a role-play practice. Role-play is aimed at equipping these students with necessary communication skills through mock practices with acting patients using actual case studies. In the role-play, the students are often required to test and develop their own interaction skills, creating questions to acting patients and accumulate information before determining the diagnosis. Interactions in the role-play are student-led and in a regular question and answer format as exemplified below. Since the interactions occur in an Indonesian classroom, Indonesian language is used, and English glossing is provided after each utterance. The following excerpt serves an example – S represents the student physiotherapist and P the acting patient.

S: *Ibu, sakitnya di mana?*
Ma'am, where do you feel the pain?
P: *Di sekitar pinggang*
Around my waist.
S: *Sakitnya seperti apa?*
What is the pain like?
P: *Gimana, ya?*
How is it like?
S: *Tajam atau tumpul?*
Sharp or blunt?
P: *Sakit aja gitu pokoknya.*
Well, it's just painful.
S: *Kira-kira sakitnya seberapa? Dari skala 1 sakit ringan, 10 sakit tidak tertahan*.
How painful do you think? From scale 1 for the lightest, 10 for the most painful.
P: *Hmm, ya, antara 5-6 gitu lah*.
Uhm, yeah, between 5-6, sort of.

The excerpt above, drawn from the second author's experience, depicts a typical interaction between a student physiotherapist enacting and an acting patient in a role-play setting. The interaction is typically student-led in that the student probes questions to gather information about the patient's experience with the pain, whereas the acting patient provides information based on a case study provided and the series of questions raised by the student. Indeed, asking probing questions is a skill that is considered necessary, but this skill has not been designed to be taught explicitly to the extent of making visible of possible interaction patterns as far as the curriculum is concerned.

Studies examining educational practices in physiotherapy education by adopting a cross-disciplinary approach are quite scarce. Dennis et al. (2021), for example, reported the benefits of actor

training and character delivery for role-play in a mixed-method study, whereas Phillips et al. (2017) reported a pilot trial to develop student safety skills to prepare them for clinical placement. In linguistics, a few studies did involve linguistic analysis to examine interactions in both physiotherapy sessions and/or healthcare settings. Josephson et al. (2015), for example, examined the therapeutic relationship of supervised final year student physiotherapists with actual patients through the Appraisal framework. Another study offers a unique look at the emergency clinics, highlighting potential challenges in communication between clinicians and patients (Slade et al., 2018). The study employed a discourse and grammatical approach which helps to reveal what makes patients safe in the emergency department. In particular, Matthiessen (2013) offers a model of medical discourse in the context of hospital including medical consultations and patients' journeys in health institutions. All of these studies though significant involved the participants who were students or actual physiotherapists doing actual treatments in a clinic. A step back to look at how the students are prepared and learn to develop their skills in classrooms is as important as actual clinical settings as far as their communication skills are concerned. Students' performance potentially paints a broad picture of what they can and cannot do, providing better chances for immediate pedagogic fine-tuning or even intervention. In turn, this step will better equip students with the necessary communication skills before their actual placement in the clinics.

Our choice of selected linguistic frameworks is genre and register theory and NEGOTIATION from the systemic functional linguistics. These frameworks allow us to have a closer look at patterns of interactions in context, revealing how the students structure their physiotherapist-patient talks in the role-play setting. An *appliable* linguistics (see Mahboob & Knight, 2010), the former is the interpersonal discourse which specifically deals with spoken dialogic texts (Martin, 1992) such as used in the physiotherapist – patient interactions, whereas the latter assist in revealing the context of culture and context of situation within which the interactions take place (Martin & Rose, 2008). In NEGOTIATION, interactions are studied as exchange structures: they consist of two kinds of moves in conversations – knowledge moves or action moves. Knowledge speakers have one of two roles: primary knowers (K1), or secondary knowers (K2). Action speakers are either primary actors (A1), or secondary actors (A2).

Framing Questions

In this study, we focus on the learning experience of the student physiotherapists before their clinical placement in clinics, specifically their performance in the history taking role play. This is considered a significant step to take since preparation. This study also serves as a diagnosis, revealing the typical student physiotherapists' strength and limits in their communication skills when enacting history taking role play. This is also considered an important step to make explicit what is expected from curriculum outcomes of successful history taking interactions. Focusing on the learning experience, this study was guided by two questions: 1) How did the students structure their interactions in the history taking role play? 2) What can be drawn from the students' interaction patterns to indicate their skills in role-play?

METHODS

A discourse analytic approach

This study is qualitative in nature in that it employed a discourse analytic method (cf. Josephson et al., 2015). It followed systemic functional linguistics theory (Halliday & Matthiessen, 2014; Martin, 1992), specifically the genre and register framework (Martin & Rose, 2008) and the interpersonal discourse of NEGOTIATION (Martin, 1992; Martin & Rose, 2007). The genre and register framework were employed to distinguish stages construed by the students in the interactions during the history taking role play. The theoretical model of genre and register was observed as a two-layered model of social context. Genre, the context of culture or a social purpose of a *text*, is defined as 'a staged, goal-oriented process' (Rose & Martin, 2012, p. 54). An additional consideration to analyse spoken genre involved several steps following Thornbury and Slade (2006, p. 147):

> […] *identifying chunks of talk that is amenable to a generic description, defining the social purpose of the genre, differentiating the different stages (the macro-structure), including specifying obligatory and optional stages, analysing the linguistic features of each stage*.

This means that in analysing spoken texts, the stages are examined through the central purpose of the text and the interaction patterns forming stages to achieve the purpose.

Register controls the context of situation covering the tenor (of social relations), the mode (of communication), and the field (of experience). Tenor takes into account the particular audience involved in the text. Mode deals with the modalities where a particular text occurs. In spoken text the varieties usually involve monologue, dialogue, gestures or visual/verbal modalities. Field is the particular institution of the text which applies related topics such as healthcare, news, science and others.

The interpersonal discourse of NEGOTIATION was used for analysing the patterns of interactions

during the role play. This analysis involved examining the phases of interactions in the history taking through the knowledge and action exchange structure and the speaker roles. The analysis also looked into the phases of the interactions as realized interpersonally by knowledge or action roles assigned to student physiotherapy and acting patient in exchange structures. In a knowledge exchange, the core role refers to K1 or the primary knower who holds the information and K2 as the secondary knower who asks for the information. A physiotherapist asks a question or inquires information to the patient, so the sequence is K2^K1. In an action exchange, the core role is primary actor or A1, while the secondary actor (A2) demands the action. The exchange may consist of just an A1 role. Less often in history taking, the physiotherapist may direct a patient's activity or behaviour, so the sequence is physiotherapist as A2 and patient as A1. In addition to the most frequent types, the physiotherapist and patients may also follow up a move with a comment (K1f/K2f). Moves may also be tracked to clarify understanding, i.e. tracking (tr) and response to tracking (rtr). Sometimes when a session begins, greetings such as *good morning* occur, followed by a response. The former is labelled as Gr and the latter as rGr.

This exchange was taken from a typical history taking episode in a physiotherapy session previously mentioned in the Introduction section. The speaker, role and exchange with English glossing were outlined to demonstrate how the analysis was applied. The exchange structure was analysed in three columns. The first column identifies the speaker, labelled as the physiotherapist (T) and the patient (P). The second column is the utterance by each speaker. The third column is role assigned to each exchange unit. The structure is an exchange complex, K2^K1 // K2^tr^rtr^K1 // K2^K1, where // indicates a boundary between each exchange in the complex structure. The overall structure is shown in Table 1 below for an example of analysis, with a line between each exchange in the sequence.

Table 1
A Sample of Exchange Structure Analysis

Speaker	Exchange	Role
T	*Ibu, sakitnya di mana?* Ma'am, where do you feel the pain?	K2
P	*Di sekitar pinggang.* Around my waist.	K1
T	*Sakitnya seperti apa?* What is the pain like?	K2
P	*Gimana ya?* Do you mean how it is like?	tr
T	*Tajam atau tumpul?* Sharp or blunt?	rtr
P	*Sakit aja gitu pokoknya.* Well, it's just painful.	K1
T	*Kira-kira sakitnya seberapa?* How painful do you think? *Dari skala 1 sakit ringan, 10 sakit tidak tertahan*. From scale 1 for the least painful, 10 for the most unbearable.	K2 =K2
P	*Hmm, ya, antara 5-6 gitu lah*. Uhm, yeah, between 5-6, sort of.	K1

In this example, the exchange structures are realized in a series of knowledge moves. The physiotherapist asks for information (K2), provided by the patient who holds the information (K1). A few tracking moves occur where the patient asks for clarification (tr) about the description of the pain. This is then responded by the physiotherapist (rtr), followed by the information provided by the patient (K1).

Data and participant information

The data were obtained from a class of physiotherapy study program in a university where one of the authors taught. The students were required to record their role-play for their final assignments. The unit was the Practice of Musculoskeletal Physiotherapy, which included musculoskeletal physiotherapy and therapeutic communication. The former is the focus of the practice and to do with limitations in mobility caused by bones of the skeleton, muscles, joints and other supporting components (see Dutton, 2011). This unit was compulsory for the second-year (the fourth semester) students who were required to pass other compulsory units, such as Basic Therapy Practices, Basic Examination, Physiology and others before enrolment. The unit consisted of a theoretical basis of physiotherapy, followed by a series of practices. The objective of the unit was to enable

students to apply a physiotherapy process related to musculoskeletal disorders.

The evaluation focused on their performance in enacting history taking which covered how they used language, demonstrated ethical conduct, and applied their theoretical knowledge. The practice section was conducted in a role-play form in that the students acted as a physiotherapist and were assigned different case studies related to musculoskeletal treatments. In the beginning, the teaching team demonstrated a typical session in physiotherapy using an actual and specific case as a model. It is important to note that the demonstration was not informed by any linguistic insights so as to yield natural language use in the interactions before intervention. The students would then work in pair to perform a role-play, acting out the role of a physiotherapist. Though the unit was normally held in a well-equipped physiotherapy lab similar to the actual physiotherapy clinical setting, an adjustment was required to abide the pandemic quarantine rule during the time of data collection[1].

Using video recording devices: video cameras or camera phones, the students paired up with a friend or family member who would act as their patients. The video records were collected from 35 students who were both male (6) and female (29) in their early 20s. The acting patients were either their roommates or family members from early 20s to late 50s. All acting patients were required to live in the same house with the student physiotherapists in order to abide with the strict health protocols at the time of the study[2]. Different from the actual treatment which may last at least to 30 minutes, each student participant was required to submit 5 – 10-minute length video records which only focused on the consultation session and demonstration of treatment. This is a standard practice of physiotherapy education prescribed in the curriculum. The final video records collected from all student participants were about 300 minutes in total, submitted in a cloud service provided by their teacher as a final exam. The parts where the history taking stage took place formed the basis of the data.

Ethics approval for this study has been obtained from the Research and Community Engagement Ethical Committee, the Faculty of Public Health, Universitas Indonesia (No. 754/UN2.F10.D11/PPM.00.02/2020). Participants involved in the data collection gave their written consents to the researchers to use their video and audio records. Pseudonym is used throughout the paper whenever the participants involved to protect their identity.

[1] Indeed, in the actual setting real patients are involved, but student physiotherapists need to pass several exams before being allowed to treat real patients. As flagged above, this study focuses on the second-year students who need to pass their exam involving role-play as an initial step to be allowed for supervised apprenticeships in clinical settings.

[2] The exam timeframe coincided with the first hit of the pandemic, restricting many people, including the students involved in the study, to meet with other people unless they shared the same house.

FINDINGS AND DISCUSSION

In this section, results of the data analysis are presented as genre stages drawn from exchange patterns and a repertoire of the general students' interaction skills in a continuum. The stages are informed by the interaction patterns identified from the exchange structures found in the data analysis. It begins with the overall genre stages, followed by the exchange patterns which shape each of the genre stage. The continuum is the general picture drawn from the interaction patterns performed by the students.

Stages of history taking

The role-play in the history taking was set out in the first consultation session in that the physiotherapist and the patient were assumed to meet for the first time and not to know what to expect. The first consultation aimed to establish diagnosis to determine the estimated duration of the treatment, making history taking, along with other stages of diagnostics, significant.

The social context constituting history taking can be seen in terms of register – the tenor of social relations, the field of experience, and the mode of communication, as well genre, or a social purpose of a text (Martin, 1992; Martin & Rose, 2008). The field of history taking is organised as activity sequences that lead to a person requiring a visit for treatment consultation. It is the patient's personal activities and experience with pain in detail which will provide information for the physiotherapist to assess and give treatment. The tenor of history taking depicts formal, distant and often unequal status shared between the physiotherapist and the patient especially for the first consultation. This can be seen from the use of honorific (e.g. *ibu* 'ma'am, *bapak* 'sir') to address the acting patients. The relationship of the unequal status of the treatment and the one requiring assistance is made explicit throughout the overall sessions. The mode was spoken in both monologues and dialogues. The different realization of modes makes explicit the staging in the history taking (see Table 2).

Table 2
Stages of History Taking

Generic staging	Modalities
Physiotherapist introduction	Monologue
Identity checking	Dialogue
Guided recount	Dialogue

In terms of genre, history taking has its own function and can be considered as a "staged,

oriented, social process" (Rose & Martin, 2012, p. 54). Its function is to "find indications as to which subgroup the patient belongs and to assess prognostic factors" (Verhagen & Aleesie, 2018, p. 36). It is staged since there are a few steps to accomplish the goal of history taking; it is goal-oriented since the completion of history taking determines the success of the information retrieval useful for physical examination and diagnosis. History taking is enacted in spoken texts, unfolding predictable stages through 'chunks of conversation'. The stages are distinguished by the typical exchange patterns informed and shaped by the mode. The stages of history taking consist of Physiotherapist introduction ^ Identity checking ^ Guided recount (see Table 2). In brief, all stages in history taking are realised verbally, which means that there is a reliant upon verbal texts to achieve the goal in history taking. Each stage is further distinguished into a monologic or dialogic talk – the former covers the Physiotherapist introduction stage and the latter the Identity checking and Guided recount stages. Each stage is elaborated further below.

Physiotherapist introduction

The Physiotherapist introduction stage aimed to present the physiotherapist as the one providing the treatment. In this stage, the physiotherapist began with greetings, introduction of themselves and explicitly stating their role. The exchange tended to be one-way with the patient listening to the physiotherapist and it was held at a relatively short exchange. An example is presented in Exchange 1 below. The student physiotherapist (ST6) began the session by greeting (Gr) the patient (AP6), which was responded by AP6 (rGr). She then mentioned her name and her role through complex K1 moves.

Exchange 1

Sample of a Physiotherapist Introduction

Speaker	Exchange	Role
ST6	Selamat pagi, Bu.	Gr
	Good morning, Ma'am.	
AP6	Pagi.	rGr
	Morning.	
ST6	Saya Nala.	K1
	I am Nala.	
	Sebagai fisioterapis ibu hari ini.	=K1
	(I am) your physiotherapist for today.	

In another example, aside from introducing themselves, the student physiotherapist also mentioned that they had prepared for the session by washing their hands, implying the state of their hygiene (see Exchange 2 for an example of this case).

Exchange 2

Physiotherapist Introduction 2

Speaker	Exchange	Role
ST1	Selamat pagi, Bu.	Gr
	Good morning, Ma'am.	
	Silahkan duduk	A2
	Please have a seat.	
AP1	[sitting down]	A1
ST1	Nama saya Lina.	K1
	My name is Lina.	
	Fisioterapis yang bertugas hari ini	=K1
	(I am) the physiotherapist who is working today.	
	Baik Bu sebelumnya saya sudah cuci tangan ya.	=K1
	OK, Ma'am, before this I have washed my hands.	

The beginning of the exchange was relatively similar to that of Exchange 2 above. It began with a greeting and a request for the patient (AP1) to sit down (A2), followed by the patient sitting down (A1). The physiotherapist then mentioned her name, her role and her action prior to the session '*before this I have washed my hands',* all in a series of K1 moves. The last K1 move, in particular, has nothing to do with the current situation. Even before the pandemic, physiotherapists were often encouraged to state that they had washed their hands to ensure the patients of the physiotherapist's hygienic practice.

This short exchange in the Physiotherapist introduction stage was similar to monologue in that it was the physiotherapist that mainly did the talking. The acting patient did not respond as they were at the receiving end. The monologic pattern marks the distinction with the next stage, that is Identity checking, which requires more dialogic exchanges.

Identity checking

The Identity checking stage aimed to check the patient's identity, ensure the physiotherapist to gain the right patient and correct any information errors if necessary. Prior to the session, the patient wrote up their personal information for administrative purposes in the receptionist, which would be transferred to the physiotherapist. In this stage, the physiotherapist raised the questions about the same information in order to check if the patient's information sheet given to the physiotherapist contained correct information (see Exchange 3 to see a typical exchange pattern in the Identity stage).

The exchange was constituted by a series of K2^K1 move structures. The physiotherapist asked questions related to the patient's identity, such as name, age, address, and occupation, followed by the patients' answers.

Exchange 3

Checking Identity

Speaker	Exchange	Role
ST4	Dengan nama siapa, Bu? *What is your name, Ma'am?*	K2
AP4	Rani.	K1
ST4	Umurnya berapa, Bu? *How old are you, Ma'am?*	K2
AP4	60 tahun. *Sixty years old.*	K1
ST4	Tinggalnya di mana, Bu? *Where do you live, Ma'am?*	K2
AP4	Di Perumahan A. *In House Complex A.*	K1
ST4	Pekerjaannya sekarang apa, Ibu? *What is your occupation, Ma'am?*	K2
AP4	Di rumah saja. *Just staying at home.*	K1

The information provided also helped the physiotherapist to learn about the patient's background. The physiotherapist could also have inquired other questions such the patient's hobbies (see Exchange 4 for an example).

Exchange 4

An Inquiry of a Patient's Hobby

Speaker	Exchange	Role
ST5	Eeeh, pekerjaannya, Pak? *Mm, what is your occupation, sir?*	K2
AP5	Guru. *Teacher.*	K1
ST5	Eeh... kegiatan Bapak sehari-hari di waktu luang apa ya, Pak? *Mm… what is your activity in your spare time, sir*?	K2
AP5	Olahraga. *Sport.*	K1
ST5	Olahraganya apa, Pak? *What kind of sport, sir?*	K2
AP5	Main bola *Playing soccer*	K1
ST5	Main bola [taking notes] *Playing soccer*	K2f

These exchanges, following the same K2^K1(^K2f) exchange structures, are related to the identity of the patient. More questions could have been raised if the physiotherapist thought that it would be necessary to retrieve more information about the activities or hobbies of the patient as exemplified in Exchange 4. The motivation was often to do with the training in that the way a patient entered the room for a consultation could give an initial impression of what they may have suffered from. For instance, a patient cannot walk properly or is assisted when entering the room may indicate a result of recent injury or experience related to their activities or hobbies.

The end of this stage was marked by a shift of field or the topic of interactions. The physiotherapist usually begins with a question which is to do with the reason the patient comes to the clinic, shifting to the next stage – the Guided recount.

Guided recount

The function of Guided recount is to gather information from the patient retelling the experience causing their concern. It is considered a recount since it 'chronicle[s] events in the past' (Humphrey & Vale, 2020, p. 112). and the patient needs to tell what has happened while the physiotherapist documents the events. It is guided since it is led by the physiotherapist who needs the personal experience through a series of questions related to the possible cause of the patient's concern. The stage unfolds through a dialogic process in which the physiotherapist usually asks a series of questions leading to the patient recounting factual events. The stage is initiated by a typical question raised by the physiotherapist *ada yang bisa saya bantu?* 'how can I help you?', or *ada keluhan apa?* 'what are your complaints?', followed by the patient telling any pain they experience and the physiotherapist asking further related questions.

What should be noted is that in this stage the student physiotherapists vary in the way they guide the patients to recount their experience. It is likely that the students attempt to construct the interactions based on their interpretation of communicating with patients and simply lack of experience. Several exchanges can be relatively brief, while others can be long and more investigative. In Exchange 5, for example, ST3 did a rather brief history taking session.

Exchange 5

A Brief Guided Recount

Speaker	Exchange	Role
ST3	Bapak Fawaz, ada keluhan apa datang ke sini? *Mr. Fawaz, what complaints that make you come here?*	K2
AP3	[Memegang leher] Ini leher saya udah pegel-pegel udah dua minggu *[holding his neck] My neck has been sore for about two weeks.*	K1
ST3	Nyeri nggak? *Is it painful?*	K2
AP3	Lumayan *Quite so.*	K1
ST3	Baik, saya periksa dulu ya, Pak *Alright, I will examine it, sir.*	A1
AP3	Iya. *Yes.*	A2f

Initially the student physiotherapist began with a K2 move, a question which invited an elaborated answer *what complaints that make you come here?* The acting patient also provided a rather descriptive answer, telling about his two-week experience with sore neck experience. However, the next exchange was followed by a K2 move *Is it painful?* a polar interrogative which does not open much space for the acting patient to elaborate but a simple answer *quite so.* After such a brief exchange, he then went straight to examine the patient.

This brief exchange of the Guided recount is not quite favoured since the information collected from the patient may not be considered sufficient to detect or identify particular disorders (see Verhagen & Alessie, 2018). Short exchanges are not uncommon, yet often found at a quite considerable number in the students' records. A few numbers of student physiotherapists however demonstrated quite lengthy interactions compared to the example in Exchange 5.

The Guided recount stage in Exchange 6, for example, was more elaborate in that the student physiotherapist asked more open-ended questions, allowing the acting patient to provide elaborated answers. When the physiotherapist asked about the location of the pain, for example, the patient specifically mentioned the knee area which was the area of a surgery and pointed to the specific location. In the last exchange, the physiotherapist asked *what is the form of the pain like?* to which it was tracked by the patient (tr) if the physiotherapist meant *what does it feel like* before describing it as a burning sensation.

Exchange 6

Elaborative Guided Recount

Speaker	Exchange	Role
ST6	Sudah berapa lama nyerinya, ibu?	K2
	How long have you suffered from the pain, ma'am?	
AP6	Sudah ada kira-kira tiga sampai empat hari ini.	K1
	It has been for about three to four days.	
ST6	Di mana lokasi nyerinya, bu?	K2
	Where is the pain located, ma'am?	
AP6	Lokasinya tepat di bagian operasi kemarin.	K1
	The location is right on the area of the last surgery.	
	Di atas lutut.	=K1
	Above the knee.	
ST6	Jadi tidak menyebar, ya?	K2
	So it does not spread, right?	
AP6	Enggak, cuma di sini aja.	K1
	No, just this area.	
ST6	Terjadinya seberapa sering, Ibu, nyerinya?	K2
	How often has the pain occurred, ma'am?	
AP6	Kadang sehari itu tiga sampai empat kali gitu nyerinya.	K1
	Sometimes in one day the pain can occur three to four times.	
ST6	Ee, bentuk nyerinya itu bagaimana, Bu?	K2
	Mm, what is the form of the pain like, ma'am?	
AP6	Rasanya ya maksudnya?	tr
	What does it feel like you mean?	
ST6	Iya.	rtr
	Yes.	
AP6	Kayak rasa terbakar gitu, gatal-gatal.	K1
	It's like burning, itchy.	

Through a series of K2^K1 structure, the student physiotherapist used open-ended questions to seek information about the acting patient's experience with the pain. These involve, among others, the length of suffering *How long have you suffered from the pain*, the location of the pain *Where is the pain located*, up to the description of the pain *What is the pain like*. This format of questions seems to provide better information about the patient's pain.

Another case of a lengthy Guided recount demonstrates an extension of an elaborative dialog. Similar to the previous exchange, in Exchange 7. the physiotherapist used open-ended questions, but instead of moving on to the next questions after getting the patient's answer, he closed the exchange with a verbal or non-verbal move.

Exchange 7

Physiotherapist's Follow Up Moves

Speaker	Exchange	Role
ST5	Nah, jatuhnya itu bagaimana ya, Pak ya?	K2
	How did you fall, sir?	
AP5	Yah…	K1
	You know…	
	Kan lari-lari terus kepeleset	=K1
	I was running then I slipped.	
ST5	Oh, kepeleset.	K2f
	Ah you slipped.	
	Sebelumnya udah pernah berobat di mana ya, Pak?	K2
	Before this, have you been to a clinic, sir?	
AP5	Waktu itu kan dibawa ke puskesmas	K1
	At that time I was taken to a public health clinic.	
	Terus, nah, dirujuk ke rumah sakit.	=K1
	Then, ah, I was sent to the hospital.	
ST5	[nodding]	K2f
	Sebelumnya Bapak, eeh, dahulu punya, pernah, pernah apa ya pak hipertensi atau DBD?	K2
	Before this, do you, have you, hmm, have you got hypertension or dengue fever?	

AP5	Pernah dulu ya itu ya, apa ya, hipertensi. *Yes, once, I have that, you know, hypertension.*	K1
ST5	Hipertensi, ya, oke. *Hypertension yes, okay.*	K2f

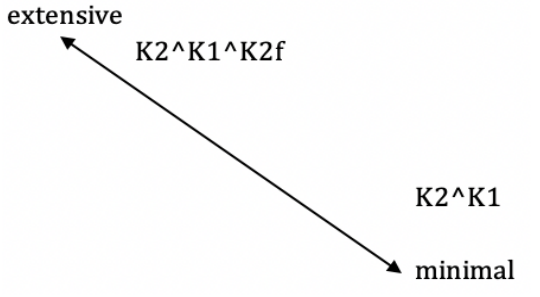
The follow-up moves are often realized in the form of a repetition of the acting patient's answers or gestures such as nodding. In one exchange, for example, the student physiotherapist asked *How did you fall, sir?* (K2), followed by the patient's answer: *I was running then I slipped* (K1), and closed by a follow up move: *Ah, you slipped* (K2f). The exchange in this example is structured as a series of K2^K1^K2f, indicating a sort of opening and closing in each exchange. The way the student physiotherapist followed up the patient's answer seems to display his attempt to explicitly show the patient that he followed what the patient told him. Such extensive exchange in the Guided recount stage is favoured by the instructor particularly for new physiotherapists.

Mapping interactions in history taking

The overall results of students' interactions in the history-taking can be mapped into a continuum (see Figure 1). It begins with a minimal pole which includes a series of K2^K1 structures. In this pole, interactions in each stage of history taking is done relatively briefly with rather minimal interactions in Physiotherapist introduction, Identity checking and particularly Guided recount. It often uses polar interrogatives throughout the interactions and thus the patients' recount does not seem to be comprehensive and informative. The patterns of interactions in this pole is often carried out in a relatively short time and may indicate lack of collected information from the patient's recount.

Figure 1

A Continuum of Exchange Structures in History Taking Stage



In the extensive pole, exchange structures are typically a series of K2^K1^K2f. The students who build extensive exchange involve two elements, which are asking open ended questions and using follow-up moves. Open-ended questions tend to be a follow-up for the patient's move with a comment and use open-ended questions in the Guided recount stage. Follow-up moves in the Guided recount may 'serve to reassure' the patient that the 'channel is open, and information is received' (Martin & Rose, 2007, p. 242). Somewhat close to the extensive pole is a pattern of exchange structures which may be comprehensive but not including follow up moves. Despite the lack of reassurance or a signal that the information is received, the exchange is still elaborated since the information about the patient's concern and experience can still be obtained.

Up to this point, it is probably fair to say that the success of history taking in particular the Guided recount stage where the patient's information is important to be obtained is determined by the quality of interactions built by the physiotherapist. The kind of questions and the way the exchange is structured may lead to the dynamic of the interaction flow in the session.

Nevertheless, it should be admitted that the findings in this study do not build a connection between the case studies of particular musculoskeletal problems or disorders and the kind of interactions used. For instance, diagnosis can be taken as early as checking the red flags once the patients walk to the room, giving hints of the pain they are suffering (Verhagen & Alessie, 2018). This suggests that there is a possibility of different interaction patterns tied with the patient's condition. Thus, training student physiotherapists should involve explicit modelling of effective patterns of interactions, which may include open-ended questions instead of yes-no or polar questions and incorporations with follow-up moves either verbally or non-verbally in the Guided recount stage.

CONCLUSION

The two guided questions in this qualitative study were addressed to investigate how students structure interactions in the history taking role play, and also to paint a broad picture of their competencies and deficiencies in their interaction skills. The findings from the study highlight the structures of the students' interactions in terms of the generic staging and exchange structures. The stages of history taking include Physiotherapist introduction ^ Information checking ^ Guided recount. In the Guided recount stage, the students' interaction skills begin to vary, from a relatively simple and brief exchange with polar interrogative to an extensive one involving open-ended questions and follow-up moves. Extensive exchange in Guided recount stage is considered an important skill in history taking. The two important elements of the Guided recount stage, open ended questions and following up, indicate more comprehensive information gained from the patients. First, open ended questions allow the patients to recount their experience more freely and help to provide necessary information for the physiotherapists. Follow-up moves allow a space in

the talk for both the physiotherapists and the patients to clarify, making the physiotherapist certain about the conclusion.

The generic stages and exchange structures may offer a useful model of interactions which can be used as a resource for teaching therapeutic communication. This explicit model of interactions can potentially prepare the physiotherapy students to work in a clinical setting as well. Nevertheless, since the current study is limited to students' contextualization of history taking in one class, further research is recommended to investigate patterns of interactions from both students and patients in a clinical placement setting as well as experienced physiotherapists and patients in an actual clinical setting. The stage and exchange structure should also be tested in an intervention program to gain a better result in the interaction model applicable for the students to follow.

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