University of Szeged

Doctoral School in Linguistics

Theoretical Linguistics PhD Program

*Is that an answer to the question?*

*Analyzing the opening turns of physiotherapist-patient interactions*

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Dissertation

**SUMMARY**

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# 1 The topic and the aims of the dissertation

The dissertation analyzes interactions between physiotherapists (PT) and patients during their first encounter. Communication between PT and patient is a form of institutional discourse, which means that it is a task-based interaction. One of the basic tasks of the first visit is to identify the patient's current problems, which are elicited by PT's opening question (OpQ).

The aim of the research is to explore 1) the characteristics of physiotherapists' opening questions (OpQ), which initiate the problem presentation phase of the visit, 2) the patterns in patients' answers to those questions, and to see 3) if and how these two relate to each other.

# 2 The structure of the dissertation

The dissertation consists of six chapters. Chapter 1 introduces the topic and describes the relevance of healthcare communication research. Furthermore, it defines the research questions in connection with some methodological considerations. The description of the data, i.e. the object of the analysis, is also included in this chapter.

Chapter 2 provides a deeper insight into the study of healthcare communication, which is a necessary foundation of the research. First, a few relevant healthcare communication models are introduced that fulfill the needs of the biopsychosocial model (Engel, 1977). Second, the basic structure and functions of the medical interview coupled with communicative skills are presented, which are adaptable to PT encounters as well. Third, the basic methods applied in healthcare communication research are described, with a special focus on conversation analysis, since this method formed a major knowledge base for the present work. The last section of the chapter gives a brief overview of the research conducted in the field of PT-patient communication.

Chapter 3 is a theoretical discussion about the characteristics and types of questions generally and within the medical context. It highlights the difficulties of defining a question in linguistics and adopts a general definition of questions involving functional and sequential considerations.

Chapter 4 includes the demonstration of the processes and the results of the data analysis. It discusses the types and characteristics of PTs' opening questions (OpQ) and the categories of patients' subsequent answers (T2) in separate sections. The last section of this chapter is set out to quantitatively determine, whether there is a relationship between the features of the OpQs and the categories of the T2s.

Chapter 5 aims to provide a theoretical framework, which could explain the variety of answers that patients give to OpQs, and especially the observation that many times it seems

like patients were not answering the question. The concept of common ground and the socio-cognitive approach form the basis for these considerations.

The conclusion and main findings of the research are summarized in Chapter 6, along with the formulation of some recommendations that could be implemented in practice, and thoughts about future research.

## 3   Theoretical background

If we look at the aims of the research, we can conclude that two important matters need to be addressed as relevant theoretical considerations. First, the definition and typology of questions within the linguistic literature generally, as well as their examination within the medical context. Second, it is crucial to be aware of the function of the problem presentation phase of the visit.

The properties of questions include several factors: grammatical form (syntax – interrogative form), semantic content, pragmatic function, prosody, and epistemic asymmetry (Hayano, 2012; Kiefer, 1983; König & Siemund, 2007; Schirm, 2007). Therefore, it is difficult to come up with a definition of a question that combines formal, interactive, and pragmatic criteria at the same time (Ilie, 2015). For this reason, I adapt Ehrlich and Freed's (2010:6) general definition of questions, which takes an interactive and pragmatic perspective and considers both functional and sequential dimensions. According to this definition, a question is an utterance that, on the one hand, solicits information, confirmation, or action (and/or is treated by the respondent as such). On the other hand, it creates a slot for the hearer to produce a responsive turn. It is important to emphasize here that the present work only considers standard questions, which request information unknown to the questioner.

Another factor that should be included in the examination of questions is their effect on the answer. Along this line, and in a simplified manner, usually open versus closed questions are differentiated. The former includes an interrogative word and the filling in of a variable is expected. In the English language, wh-questions (Ilie, 2015), also called content questions (Hayano, 2012) are the typical examples of open questions. Closed, or in other names yes-no or polar questions, on the other hand, require the responder to choose between two alternatives, confirmation or disconfirmation, respectively.

However, rather than talking about open versus closed questions, Tsai (2006) proposes a continuum along which the scope of openness varies. Furthermore, it is important to realize that not only wh-questions can be open. There are situations, where a simple yes or no as an answer to a yes-no question is pragmatically inappropriate (Tsai, 2006), so pragmatically, a

yes-no question can have a wh-interpretation (Kiefer, 1980). Nevertheless, whether open or closed, questions set topical and action agendas, convey speakers' presuppositions, beliefs, and epistemic stance, and posit preferences toward the expected answers (Hayano, 2012; Heritage, 2010). In sum, asking a question means claiming power over the emerging talk (Ainsworth-Vaughn, 2001).

It follows from these considerations that healthcare communication models recommend the use of open questions at the beginning of the visit, especially regarding the opening questions, whose goal is to elicit patients' problems (King & Hoppe, 2013; Makoul, 2001; Rollnick et al., 2008; Silverman et al., 2013; Smith et al., 2013). Open questions give patients the chance to freely present all of their problems, they are licensed to tell their stories in their own terms and according to their own agenda (Heritage & Robinson, 2006; Tsai, 2006; Tsai et al., 2014). As a result, and in accordance with the biopsychosocial model (Engel, 1977), the physical, as well as the possible psychosocial components of patients' problems, may be elicited.

Initiated by the healthcare professional's (HCP) opening question, the problem presentation phase of the visit takes place. This phase lasts until the HCP attempts to shift into a different activity, most commonly into information gathering, i.e. history-taking (Heritage & Robinson, 2006). The most relevant aspect of the problem presentation phase is that its goal is to learn about patients' problems, so it is "normatively completed with the presentation of current symptoms" (Robinson & Heritage, 2005:490), both biomedical and psychosocial in nature, that are being experienced in the here-and-now (Robinson & Heritage, 2005). Furthermore, HCPs need to solicit patients' complete agenda in order to create common ground between the participants regarding patients' problems. In other words, all possible topics for discussion should be described before committing to a certain agenda that is pursued during the clinical encounter. Once the HCP learned all about the patient's problems, a collaborative action of agenda setting should take place, whereby both the clinician's and the patient's perspectives are taken into consideration. In this way, a premature focus on any topic can be avoided (Gobat et al., 2015).

In sum, the problem presentation phase is the part of the visit, where the clinician and the patient have their main chance to achieve joint understanding, i.e. to build common ground regarding the patient's problem(s), and the topic(s) for further discussion.

# 4    Research questions

Based on the exploratory analysis of the data, on the one hand, which mainly focused on the beginning of the interactions, i.e. the problem presentation phase, and on personal experience on the other, four research questions were formulated. These are the following:

1) What type of opening questions (OpQ) are used by physiotherapists (PT)?
2) What kind of answers (second turn – T2) are provided by patients?
3) (How) can we explain the variety of answer types provided by patients?
4) Is there a relationship between the question and the answer types?

We can divide these four questions into two major groups: questions that need a qualitative approach to be answered (1-3) and one question (4) that needs both qualitative and quantitative analysis for its answer. See more details about the methodology in the next section.

# 5    Data and methods

## 5.1    The subjects and the corpus

Originally 79 audio recordings were made, but in two cases the recorder was switched on late, so these two recordings were excluded from the analysis. As a result, 77 interactions between physiotherapists (PT) and patients were included in the analysis. All the recorded interactions were first visits of the patients at the given physiotherapist. The institution, where the recordings took place is a major hospital in Budapest (Hungary) specializing in musculoskeletal problems, its main profile being rheumatic diseases. Data was collected between 2018 July and 2019 May. The research was approved by the Scientific and Research Ethics Committee of the Medical Research Council, Budapest, Hungary (ETT TUKEB 34846-2/2018/EKU).

Convenience sampling was applied in the case of both the PTs and the patients. Twenty-two physiotherapists (all female) from 7 different departments or units of the hospital agreed to take part in the research, and each recorded 3-5 sessions with different patients (N = 77). The demographic data of the participants – including PTs' clinical experience – are summarized in Tables 1 and 2.

**Table 1** Descriptive Statistics – Physiotherapists

|  | Age | Clinical experience (year) |
|---|---|---|
| Valid | 22 | 22 |
| Median | 27.000 | 2.750 |
| Mean | 31.091 | 7.015 |
| Std. Deviation | 9.909 | 10.149 |
| Minimum | 23.000 | 0.170 |
| Maximum | 59.000 | 38.000 |

**Table 2** Descriptive Statistics – Patients

|  | Age of patient | |
|---|---|---|
|  | **male** | **female** |
| Valid | 12 | 65 |
| Missing | 0 | 2 |
| Median | 62.500 | 67.000 |
| Mean | 59.167 | 65.569 |
| Std. Deviation | 15.135 | 12.035 |
| Minimum | 37.000 | 35.000 |
| Maximum | 82.000 | 86.000 |

The beginning of the main part of every session was transcribed by the author, using EXMARaLDA software (Schmidt & Wörner, 2014) and following the conventions of conversation analysis (Sidnell, 2010). The main part of the visit was operationalized as starting with PT's opening question (OpQ), i.e. with the question that was supposed to elicit the patient's concerns – so it is not the true/real start of the visit. Transcriptions ended when PT shifted towards the activity of history-taking, i.e. started to pursue the details of a symptom, or when PT changed the topic of talk (about patient's concerns) in another way.

## 5.2 Methods

Descriptive method was applied to answer the first and the second research question about the types of PTs' OpQs and patients' answers, respectively. In the case of the opening questions (OpQ), the analysis was both theory and data-driven. In other words, the starting point for the classification of OpQs was previously described question types (Tsai, 2006). It was soon realized, however, that these categories do not suffice in the case of the present corpus, so the necessary modifications and extensions of categories were based on the data. The identification of the categories for patients' answers, on the other hand, was solely based on the data, i.e. it followed an inductive method.

The main unit of analysis included three interrelated layers: 1) OpQs separately, 2) patients' answers (T2s) separately 3) OpQ-T2 relations in a qualitative sense. (The exploration of the last aspect partly answers the fourth research question regarding the relationship between the question and the answer types.) In short, the analysis was conducted on a turn-by-turn basis, where the examined utterances or turns are question-answer pairs, i.e. adjacency pairs (Schegloff & Sacks, 1973). Therefore, the analysis as well as the transcription were rooted in the method of Conversation Analysis (CA). However, to be able to understand and explain the explored phenomena, the consideration of the wider context was found to be indispensable. Since, the explanation of events and context (other than what interlocutors orient to) are not among the main points of interest within CA (proper) (Teas Gill & Roberts, 2012), the analysis included the perspectives of discourse analysis (Schiffrin et al., 2001) and linguistic pragmatics as well (Levinson, 1983). This resulted in a more complex analysis of the data, which appreciates the "general cognitive, social, and cultural perspective on linguistic phenomena in relation to their usage in forms of behavior". In short, a "general functional perspective on language" (Verschueren, 1999:7,11) was applied in the dissertation.

The classification and characterization of the OpQs considered grammatical, semantic, and contextual factors. After the author developed the classification of the OpQs and identified the variables to be examined in each of the OpQs, a co-analyst (PhD in theoretical linguistics) independently coded all the OpQs along each variable. Doubtful cases were later discussed and decided jointly. In the case of patients' answers, the inductive formation of the main categories was based on the information content of T2s. After the seven categories were defined and explained with demonstrative examples to the co-analyst, we worked in tandem to categorize each of the T2s. The complementary expertise of the author (physiotherapist and general linguist) and that of the co-analyst (PhD in theoretical linguistics) allowed for a more complex perspective during the simultaneous analysis, whereby both the medical-professional content and the interactional processes were discussed and taken into consideration. The defined categories are not mutually exclusive, which means that one T2 could be classified as belonging to more than one category.

The third research question aims for the understanding of the variety of patients' answers. Common ground was considered a crucial concept in this case for two reasons. First, the task of the problem presentation phase is to identify the patient's reasons for the visit, and second, PT's OpQ initiates this phase. Hence, this part of the interaction could be viewed as a search for common ground regarding the patient's problems. Consequently, answering the third research question required the exploration of different theories about common ground to see,

if there is an existing framework that provides sufficient explanation for the variety of patients' answers.

The goal of the fourth research question is to explore OpQ-answer relations. In order to properly answer this question, a quantitative approach was also necessary. All the examined variables were dichotomized and Pearson's chi-square tests were conducted to determine whether a relationship exists between the type and characteristics of PTs' OpQs and the category of patients' answers.

## 6 Results

### 6.1 Physiotherapists' opening questions (OpQ)

1) Four main types of OpQs were identified: i) Wh-OpQ (30%), ii) Embedded OpQ (54%), iii) Closed/Polar OpQ (5%), and iv) OpQ based on medical records (11%).

   i)   The Wh-OpQ category includes interrogative sentences (utterances) that contain an interrogative wh-word, like *mi* ('what'), *hol* ('where'), and *milyen* ('what kind of').

  ii)   The origin of the Embedded OpQ category was Tsai's (2006) statement format since the syntactical form of these kinds of questions in the data is that of a declarative or an imperative sentence. However, these sentences all included an embedded clause with an interrogative word. This is the only group, where a subclassification from a speech act perspective was also created (Austin, 1962; Searle, 1969, 1975, 1976, 1989/2001).

      a) Implicit direct request, verb: *mesél* literally 'tell the story' (24%)

      b) Implicit direct request, verb: *mond* 'tell' (7%)

      c) Explicit direct request, main verb *kér* 'request'; embedded verb: *mond* 'tell' (12%)

      d) Explicit indirect question, with either the verb *kérdez* 'ask', or its noun form *kérdés* 'question' (46%)

      e) Implicit indirect request, verb: *hallgat* 'listen' (10%)

 iii)   The OpQs within the Polar OpQ category in my data are all of the form *van-e* ('is-E' – 'is there'), so they are all positive *-e*-interrogative polar questions, which are compatible only with a neutral, non-biased context and speaker (Gyuris, 2017).

 iv)   The OpQ based on medical records is structurally-functionally inseparable from its immediately preceding context. In these cases, the "real" OpQ is immediately preceded by PT explicitly telling or reading out loud the symptoms from the patient's medical records, or by PT explicitly expressing that she has read and knows the problems from the medical record.

2) Six general characteristics (variables) of the OpQs were described and examined in each of the OpQs.

   i) reference to the patient (66%),

   ii) reference to the institute (the hospital, where the visit took place) (59%),

   iii) verbs used that take the patient as one of their arguments (lexical (59%), copula (24%), or none),

   iv) the thematic role assigned to the patient (agent (16%) versus non-agent),

   v) the PT explicitly expresses that she is interested in current problems (43%), and

   vi) the use of words *panasz* 'complaint' (78%) or *fájdalom* 'pain' (37%) in some form or another (e.g. noun or adjective) to ask about patients' problems. In 88% of the OpQs either the word *panasz* 'complaint' or the word *fájdalom* 'pain' or both appear in some form or another, although the noun form is preferred in both cases.

3) The general conclusion is that the language use of OpQs evokes a formal-biomedical context, which may affect and limit patients' answers both regarding content and alignment in linguistic choices.

## 6.2 Patients' answers (T2)

1) Based on the information content of patients' answers, seven categories were inductively created.

   i) Informative answer (40%): the patient gives relevant information considering the purpose of the problem presentation phase, which is to learn about the patient's currently experienced problem(s).

   ii) (Hi)story (27%): The patient answers by talking about past events.

   iii) Incomplete (23%): The location of the problem is named, but the nature of it, i.e. what the patient experiences, is not mentioned.

   iv) Imaging results, medical diagnosis (21%): The patient tells the result of an imaging examination (e.g. MRI), and/or answers with a medical diagnosis or opinion.

   v) Pragmatically inappropriate (12%): The patient gives an answer but its content is not appropriate in the context.

   vi) Clarification (3%): The patient asks for clarification.

   vii) Other (5%): It is not possible to classify into any of the above categories.

2) The analysis revealed that patients utilize various answering strategies.

### 6.3   OpQ-T2 relations

1) The qualitative analysis of the OpQ-T2 adjacency pairs shows that in many cases there seems to be no connection between the content and characteristics of the question and that of the answer.

2) The quantitative analysis supported the qualitative findings. Based on the results of Pearson's chi-square tests, the examined variables do not provide sufficient explanation for the T2 varieties. In other words, the examined characteristics of the OpQs have minimal or no effect on the elicited answer. This result is not in line with the theoretical presumption regarding the influence of question design on the answer.

3) The statistical analysis included the following binary variables.

   i)  In the case of OpQs (see 6.1):
- a) Wh-OpQ
- b) Embedded OpQ
- c) Reference to patient
- d) Reference to institute
- e) Lexical verb
- f) Copular verb
- g) Agent thematic role
- h) Current problem
- i) Pain
- j) Complaint

The small sample sizes of Closed OpQs, OpQs based on medical records, and the five subcategories of the Embedded OpQ prevented their inclusion in the statistical analysis.

   ii)  In the case of Embedded OpQs, the five subcategories were merged along the direct-indirect and explicit-implicit dimensions.
- a) Explicit
- b) Direct

   iii)  In the case of T2s (see 6.2)
- a) Informative
- b) (Hi)story
- c) Incomplete
- d) Imaging results, medical diagnosis

The small sample sizes of the other T2 categories prevented their inclusion in the statistical analysis.

4) The results of the chi-square tests are as follows.

   i) Only the reference to the institute variable is significantly related to Informative answers: $\chi^2(1) = 6.681$, p = .010, with a weak effect of $\varphi$ = .298.

   ii) There is an inverse significant relationship between the variable of reference to the patient and the (Hi)story type answer: $\chi^2(1) = 4.979$, p = .026, with a weak effect of $\varphi$ = -0.258. This means that reference to the patient decreases the occurrence of (Hi)story type answers.

   iii) In the case of Incomplete answers, two variables were found to be significantly related to the answer. Assigning the thematic role of an agent to the patient ($\chi^2(1) = 4.791$, p = .029, $\varphi$ = .265) on the one hand, and using the word *fájdalom* 'pain' to ask about patient's problems on the other ($\chi^2(1) = 4.339$, p = .037, $\varphi$ = .241) – both with weak effect-sizes however.

   iv) In the case of the Imaging results, medical diagnosis answers, no significant relationship was found between the features of the OpQ and this kind of answer.

   v) No significant relationship was found between the explicitness or directness of the Embedded OpQ and the answer type.

## 6.4    Explanatory framework for OpQ-T2 relations

1) The traditional concepts of common ground (Allan, 2013; Clark & Schaefer, 1989; Stalnaker, 2002), which consider communication as a cooperative and ideal way of information transfer, do not provide sufficient explanation for the observed phenomena.

2) I argue that the socio-cognitive approach (Kecskes & Zhang, 2009) and the dynamic model of meaning (Kecskes, 2008) are plausible frameworks for the analysis and explanation of the OpQ-T2 relations. If we consider the individual traits of communication, i.e. the role of prior experience and context, salience, attention, and egocentrism, we can understand and explain patients' varying T2 strategies, as well as the apparent lack of OpQ-T2 relations. In other words, patients focus on information that is important to them and connect events in a way that makes sense for them, and they may not be able to assess or they may not know what information is relevant for the other party, that is, for the PT.

The results of the present work may enrich both the linguistic-pragmatic understanding of naturally occurring healthcare interactions and the education of physiotherapist-patient communication.

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