How Empathic Communication Is Conducted in the First Encounter: A Cognitive-Pragmatic Analysis of Clinical Interviews by American Medical Students

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Abstract
Medical and healthcare universities often use simulated patients (SPs) in simulation practicums, which provide students with important opportunities to develop their interactional competencies. A total of 30 clinical interviews were extracted from the audio recordings. The interactions between American medical students (MSs) and SPs were examined aiming to clarify the process of building empathic communication from a linguistic point of view, especially from a cognitive-pragmatic perspective. In other words, the focus of the analysis was on the utterances and their interrelationship with the emotional involvement of each participant. Positive emotions associated with laughter, as well as positive evaluative statements, were identified and these formed the cornerstone of the analysis. In some sessions, a question-response interaction involving a basic medical questionnaire may provide a more extended and developed interaction on a specific topic. In such cases, a sense of closeness and intimacy emerges, and that aids in building empathy. A cognitive-pragmatic theoretical framework will also be used to clarify the mechanisms by which verbal exchanges of intimacy and laughter trigger positive emotions, as appropriate.

Keywords: Medical Discourse, Empathic Communication, Contexts of Laughter

Introduction

Objectives

This study analyzes the discourse of an interview between a medical student (MS) and a simulated patient (SP) in the context of the first meeting, in which empathy building is considered difficult. It would be interesting to observe how conversational participants engaged in self-disclosure. In this study, we report the results of our observation of the process of empathy building between two people, focusing on the exchange of words that evoke intimacy and laughter as positive emotions.

What is Empathic Communication?

According to Riley (2019), it does not judge or evaluate other people's words but just shows that you have understood them. Furthermore, to describe empathic communication, it is necessary to review the definition of empathy, which has been discussed in light of the Roter interaction analysis system (RIAS) (see Roter and Larson 2002). Roter and Larson (2002) stated that "Empathy is operationally defined in the RIAS manual as statements that paraphrase, interpret, recognize or name the other's emotional state."

On the other hand, Sandvik et al. (2002) pointed out other RIAS codes that also reflect emotionally-relevant talk, including such categories as 'legitimize,' 'reassure/shows optimism,' and 'concern.' Roter and Larson replied to Sandvik et al., saying, "what is done with these individual codes is an analytic and interpretational challenge, not a coding issue."

Theoretical Framework

Although RIAS coding is very informative, it is not surprising that controversy arises over the definition of empathy as it pertains to human emotions. This study proposes the use of another interpretive hypothesis, a cognitive-pragmatic theory called Relevance Theory (RT) proposed by Sperber and Wilson (1986/1995), while utilizing RIAS. The superiority of the Relevance Theory lies in the idea of a higher-order schema that embeds propositional content. Higher-order schemas are useful in that they can express, for example, the degree of the confirmatory nature of a confirmatory question or the speaker's intentions and attitudes with a positive or negative orientation. Spoken utterances that do not have a linguistic component, such as 'laughter,' can also be treated as elements that contribute to the restoration of communicative content in the same way as speech.

The hearer or the interpreter of an utterance has a thought of higher-order explicit meaning, and it is dubbed 'higher-level explicature (HLE).' HLE can be part of assumptions of possible interpretations. For example, when medical student produced an utterance like "is there any cause for increased stress," simulated patient, the hearer, may or may not have one of the HLE (1b-i), (1b-ii), or (1b-iii). (see also Goto et al. 2022 for confirmatory statements)

(1) a. confirmatory statement produced by MS: "Is there any cause for increased stress?"
b. HLEs:
i. the speaker is asking the hearer whether P (P = proposition)
ii. the speaker is confirming whether P.
iii. the speaker assumes that P (and therefore has a desire to confirm).

Similarly, the speaker's emotions associated with laughter can be recovered as HLE. One possible HLE may be that the speaker has an associative (or positive) feeling towards what is expressed by the linguistic content of the previous MS utterance. Including the interaction in (2), we will see detailed analyses of laughter in the data used in this study.

(2) MS: Well, I mean, managing a household is a job on its own, right?
SP: [laughter]

Data & Method

Data

A total of 30 clinical interviews were conducted between American MSs and SPs in a simulation practicum class (audio recorded and transcribed).

Duration of each session: approximately 20 min.

- Symptoms of SPs: Fatigue
- Diagnosed: No

Method

We extracted the transcribed text utterances accompanied by laughter or laughter itself. We then categorized the laughter in terms of the 'context in which it occurred.' We identified the person who produced laughter and analyzed the effects of laughter, in particular, whether laughter contributed to empathetic communication, and identified the causes of laughter.

Contexts of 'Laughter'

Several parameters have been considered in previous laughter studies. As an instance, external contexts such as 'being tickled,' 'watching humorous videos' or 'hearing jokes' immediately come to mind, as described by Vettin and Todt (2004). Laughter tends to be contagious in everyday conversations and is frequently induced by laughter from others (Provine 1992). In this study, however, only the following two points are taken up as 'contexts of laughter' because this study aims to explore the ways in which laughter contributes to communication in discourse (in this case, interviews).

- an utterance by the previous speaker (including emotional output such as laughter by the previous speaker)
- an utterance by the person who laughs (i.e., laughter immediately after their own utterance)

Among the collected 'laughter,' chains of laughter were observed on several interviews. Many chains of laughter occurred on occasions of extended or developed conversations (i.e., extended from the basic, scheduled interview QA). This sort of 'derailment' or 'going off on a tangent' is another keyword that we would like to focus on in this study.

Typical Flow of Interview

MS first asked about the chief complaint and then conducted a variety of other interviews, including b. through k., as listed below. After the interview, the session ended with a physical examination.

a. chief complaint (→ fatigue)
b. amount of sleep
c. pains of stomach/chest, etc.
d. medications
e. allergies
f. smoking & alcohol
g. medical history
h. medical history of family members (including parents, siblings, children)
i. any changes in appetite, indigestion, urinary, etc.
j. headaches, numbness, etc.
k. any feelings of anxiety, depression, etc.
➡ physical examination

Quantitative Study

Results

TABLE 1. Comparison of 'Laughter Count' between MS and SP

	Number of occurrences of laughter <range>	**Median number per interview**	**Whether or not a chain of laughter <range>**	**Contexts of laughter** **a. after own utterance** **b. after partner's utterance**
MS	3 - 42 times	6.0 times	0 – 3 times per interview session (20-min each)	a. 76% b. 24%
SP	0 - 10 times	2.26 times		a. 40% b. 60%

During the 20-minute interview conversation, the number of times each participant laughs ranged from 3 to 42 for the MS and 0 to 10 for the SP, as shown in TABLE 1. The medians were approximately six times for MS and approximately 2.26 times for SP. The number of times a chain of laughter occurred ranged from one to three per interview. The figures show a contrast regarding whether laughter occurred at the time of their own utterance or that of their partner (i.e., the context of laughter): 76% of the laughter produced by the MS occurred immediately after their own utterance, whereas 60% of the laughter produced by the SP occurred immediately after their partner's utterance.

To ascertain the difference in the laughter after their own utterance and after partner's utterance between MS and SP, Man-Whitney *U* tests were conducted. The statistical analyses revealed that the number of the laughter after their own utterance were significantly higher in the MS group ($Md = 2.0$, $n = 30$) compared to the SP group ($Md = 0.0$, $n = 30$), $U = 241.00$, $z = -3.20$, $p = .001$, with a medium effect size $r = .41$. On the other hand, it was found that there was no statistically significant difference between the MS group ($Md = 0.0$, $n = 30$) and the SP group ($Md = 1.0$, $n = 30$) in terms of the number of the laughter after the partner's utterance were not significantly, $U = 419.00$, $z = -0.49$, $p = .625$, with a small effect size $r = .06$.

Note that because this study did not aim to analyze the perception of laughter itself, the acoustic measurements focused only on the duration of laughter and not on other features,

such as those related to fundamental frequency. Rather, it focuses on the process of understanding empathic utterances and does not consider their frequency or other features.

Discussion

Based on the results of the data analysis, we may state the following.

- MS produced more 'utterances accompanied with laughter' than SP.
- A large percentage of laughter by MS was produced immediately after the MS's own utterance.
- In contrast, a large percentage of laughter by SP was influenced by previous MS utterances or laughter.
- Chains of laughter were observed during some interactions, many of which occurred during extended conversations (for example when MS asked SP about her family members, SP talked about her children's college, and MS shifted the topic to her own college. Laughter occurred during each participant's 'self-disclosure.' This type of topic extension often occurred after almost all scheduled questions and before physical checks).

According to the analysis by Vettin and Todt (2004), who recorded and analyzed conversations in a setting similar to that of daily conversation, the participants often ended their own speech with laughter as well as laughing at the other participant's utterance. This study used data from a simulated conversation, in which MS and SP played the roles of interviewer and interviewee, respectively, in a setting different from that of everyday conversation. However, the results of this study partially resembled the results of the analysis of daily conversation in that MS often laughed immediately after the speaker's own utterance. The number of times that MS showed this "laughter after their own speech" was significantly larger than that of SP.

Qualitative Study

We regard it as highly significant to conduct an integrated quantitative and qualitative analysis. In this section, we will take a closer look at the behavior of the participants in the conversational interactions, selecting some examples from a few interviews in which the effect of laughter is noticeable.

A Chain of Laughter

Excerpt 1 (interview 1)

077 MS: No. And what do you do for work? /[1]
078 SP: Um, actually, I haven't—I'm not working currently.
079 MS: Okay.
080 SP: I was—you know, it's—it's so strange to say it, like, it feels strange to me. I was a stay-at-home mom, but, now, they're, um, in college. So—
081MS: Oh, wow.
082 SP: I'm kind of—yeah. And so-so, no, I used to work, um, before-before they were born. And when my daughter was born, I—I stopped, and I'm just a stay-at-home mom, but, currently, no, I'm not working.

[1] / rising tone of question
[2] [laughter] explicit/clear laughter

083 MS: Well, I mean, managing a household is a job on its own, right? /
084 SP: **[laughter]**[2]
085 MS: You know what I mean? You know?
086 SP: I know.
087 MS: [unintelligible] started working, you know, they mean, like—
088 SP: **[laughter]**
089 MS: Definitely.
090 SP/MS: **[laughter]**

In this part, SP smoothly answers MS's questions. Here, in response to MS's question "what do you do for work?" ([077]), SP answers "I'm not working currently" ([078]), after which SP talks for a while, and then MS replies saying, "managing a household is a job on its own, right?." ([083]) This elicits laughter from the SP. Shortly thereafter, the SP laughs twice immediately following MS's utterance. In other words, the first MS utterance triggers a chain of humorous laughter.

A tag 'right?' at the end of an utterance [083] has a rising tone; this linguistic element leads them to empathic communication. In other words, this element suggests that the speaker (MS) assumes that the hearer (SP) has also known information expressed by the utterance, and therefore it conveys the speaker intends to lead the hearer to the assumption that speaker wants to confirm that the information is already shared among them. It may then be interpreted that the hearer reads humor with that intention, which leads to laughter. Furthermore, SP's laughter has no linguistic elements. However, it is possible to describe a speaker's thought as follows (via pragmatic inference):

> *The assumption that can be pragmatically recovered:*
> The speaker's laughter shows a speaker's positive emotional attitude toward a thought expressed by the hearer's previous utterance (that managing a household is a job of its own).

An Extended Interaction With Laughter

Excerpt 2 (interview 23)

092 MS: Okay. What--what did-- what were you hospitalized for? /
093 SP: The birth of my-- both my children.
094 MS: Okay. How old are they now?
095 SP: My daughter is 20 and my son is 18.
096 MS: Oh, wow. Okay. So just both in high school, huh? /
097 SP: No, both in college.
098 MS: No? / Oh, both in college. Oh, yeah. I look at my age and it's just like–
cause we graduated at 17. **[laughter]**
099 SP: **[laughter]**
100 MS: Yeah. Okay-okay. Where are they at for college? /
101 SP: My daughter's away in Southern California-
102 MS: Oh, nice.
103 SP: -private School. And my son is a UH student. He's dorming over there.
104 MS: Awesome. What school in Southern California? /

[2] [laughter] explicit/clear laughter

105 SP: USC.
106 MS: Oh, okay. I went to UCLA, so- **[laughter]**
107 SP: Oh.
108 MS: -we're rivals a little bit. **[laughter]**
109 SP: Yeah, just a little. **[laughter]**

Excerpt 2 illustrates a chain of laughter: Conversation is expanding with regard to the topic of SP's children. In [098] and [099], when the first chain of laughter was generated, MS asked an additional question about SP's children's college, then mentioned his own graduating college, UCLA, and finally ended with a humorous expression, "we're rivals" which elicited a big chain of laughter. This is followed by a derailed conversation that continues until [108], showing that this is a typical case of MS derailment, in that it involves MS self-disclosure.

Excerpt 3 (Interview 21)

134 MS: Okay. So that covers most of the history. So now I'm just gonna do a quick physical exam, okay? / All right.
/long silence 00:06:30-00:06: 40/
135 SP: My grandma's last name was Seto.
136 MS: Oh, really? / Yeah? /
137 SP: From Kauaʻi, she's from Kauaʻi.
138 MS: From Kauaʻi? / Oh, okay.
139 SP: from there.
140 MS: Um, so I think we do have family kind all over the place. Um, was it pronounced Seto? / Because it's funny, like the--
141 SP: Seto.
142 MS: So the Japanese is the Seto but--
143 SP: Yeah, and there's Chinese kind of.
144 MS: Yeah-yeah. Oh, cool.
145 SP: Okay.
146 MS: Yeah, it's funny. I mean, it's a pretty big family and I definitely like, you know, I go to those big family gatherings and like, I don't really know everyone, who are those-- so, yeah.
147 SP: Yeah-yeah.
148 MS: Can't say for sure.
149 SP: Kind of picky, kind of the same.
150 MS: Okay-okay.
151 SP: Can the kids in the family kind of thing.
152 MS: Yeah. You know, Kauaʻi that's not familiar. Um, yeah, not fully sure though, but yeah, a lot of us **[h]**[3] are around definitely.
153 SP: Yeah-yeah.

In the third excerpt, during the physical check, the SP began chatting about her grandmother's name. The use of 'we' in the line "I think we do have family kind all over the place," [140] clearly indicates self-disclosure and empathy. This conversation was further extended while keeping the current topic. No laughter was observed, except for a brief laughter in MS's final line [152]. However, there are several MS replies that contribute to

[3] [h] breath as a laugh/short laugh

empathic communication, such as the placing of a strong force in “Oh, really?” [138] and the positive evaluation “Oh, cool” [144].

Where the Extended Interaction Often Occurred

As presented in the two extracts, there were cases of extended chitchat-style conversations, some of which occurred immediately before the final physical examination. In such cases, it is expected that the two people who met for the first time have already gone through the process of getting to know each other through several interviews and that the tension of the first meeting eased. Therefore, it is predictable that the chain of laughter was not intended but occurred spontaneously.

Conclusion

As a tentative conclusion, we argue that the elements that play an important role in facilitating empathic communication include emotions associated with laughter and extended conversations. Laughter can be explained as part of the linguistic content because it is almost always associated with a positive (associative, curious, happy, etc.) attitude of the producer toward the propositional content of the utterance, regardless of MS/SP.

Most of the cases of ‘laughter’ collected from the 30 interviews analyzed in this study was, in fact, labelled as so-called positive laughter from our point of view. Negative laughter also contributes to empathic communication.

In the interviews, MS self-disclosure was observed in extended conversations. This resulted in empathic interactions in which a chain of laughter occurred spontaneously. The cognitive pragmatic explanation of empathic communication in such cases is as follows: The participants’ attitudes toward the propositional content of the utterance (propositional attitude or higher-order explicit semantic content) were understood by both participants as positive, and this understanding was chained, resulting in an empathic cognitive effect.

In seeking to further deepen the quantitative and qualitative study of verbal ‘laughter,’ it would be a shortcut to identify the speaker's propositional attitude to each utterance one by one, while clarifying what message the speaker intends to convey with each utterance in the context of the overall discourse context. It would be worthwhile to explore more sophisticated interpretive methods of language along with RIAS, as presented at the beginning of this paper, and make effective use of them in medical discourse analyses.

For Future Research: Keys to a Cognitive-Pragmatic Analysis of Empathic Communication

In the introduction of this paper, we referred to HLE as one of the key concepts in cognitive pragmatic research; while HLE is an appropriate concept for displaying the various propositional attitudes (including emotions) of the speaker, there is another fundamental concept that underpins HLE, called ‘echoic use of utterances.’ The ‘echoic use of utterances’ is an interpretive method of recovering speaker’s feeling/attitude to the content of what she/he repeats, replace, or summarize the previous utterances. Sperber and Wilson (2012) proposed various types of echoic use of utterances. Let us consider the example of (3) below, as a response to Student A’s utterance “I finally submitted the thesis last week!”, Student B produces the utterance “You submitted the thesis” with three distinct tones of voice. In each

case, the interpretation can be analyzed based on at least two different attitudes toward the proposition. The first is Student B's affective attitude and the second is certainty. In the case (a) that the utterance is produced with a happy tone, the affective attitude will be (i) associative, and the speaker's certainty is (i) high; that is, the speaker believes the propositional content that the hearer submitted the thesis.

(3) Student A: I finally submitted the thesis last week!
Student B: a. (happily) You submitted the thesis! Good for you.
b. (cautiously) You submitted the thesis? Really finished?
c. (dismissively) You submitted the thesis! You finished!

Interpretation) Student B's affective attitude:
(i) associative,
(ii) concerned/curious,
(iii) dissociative
Student B's certainty (as a propositional attitude):
(i) high, S believes P,
(ii) neutral (non-biased), S asks whether P, *or*
rather high, S confirms that P,
(iii) dissociative, S does not believe P

We would like to argue that the integrative use of RT as an interpretive theory in the field of linguistics with RIAS and other analytic systems that are widely used in medical field can be beneficial in our analysis of medical discourse—esp. conversational data of simulation practicums such as ones that we used in this study. We believe that the interpretation of the explicit meaning of single utterances and the contribution of those single utterances to the discourse as a whole can be effectively analyzed using multiple theoretical frameworks.

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