



Communication between Astronauts and Nasa Deep Space Network: A Conversation Analysis

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Abstrak

Dalam bidang analisis percakapan, percakapan merupakan salah satu cara untuk mendekati tatanan sosial. Percakapan bukanlah objek yang tampak tidak teratur dan acak seperti yang terlihat pada awalnya. Merupakan lokus interaksi khusus dimana pergantian penutur berulang (terjadi), pihak-pihak yang berbicara pada saat yang bersamaan. Transisi tanpa celah dan tidak tumpang tindih adalah hal biasa. Tujuan dari penelitian ini adalah untuk menganalisis aspek penggunaan analisis percakapan dalam komunikasi antara Astronot dan NASA Deep Space Network (DSN) dalam kerangka tersebut. Penelitian ini menggunakan metode deskriptif kualitatif yang diterapkan dalam penelitian ini. Pengumpulan data dilakukan dengan cara menyalin ucapan-ucapan mereka dari Youtube dan menyalin ucapan-ucapan mereka langsung ke dalam teks tertulis. Hasil penelitian menunjukkan bahwa terdapat 6 jenis pasangan ketetanggaan, dari analisis data ditemukan 47 ujaran yang terdiri dari pasangan ketetanggaan. Dari temuan yang diperoleh terdapat 7 permintaan – persetujuan, 11 penilaian – persetujuan, 17 pertanyaan – jawaban, 1 pujian – penerimaan, 1 keluhan – permintaan maaf, 10 penawaran – penerimaan untuk pasangan ketetanggaan.

Kata kunci: Analisis percakapan, pasangan ketetanggaan, kesepakatan penilaian, penawaran – penerimaan

Abstract

In the field of conversation analysis, conversation is one way to approach social order. Conversations are not the seemingly disorganized and random objects they seem at first. This is a special locus of interaction where changes in speakers are repeated (occur), the parties speak at the same time. Gapless and non-overlapping transitions are common. The aim of this study is to analyze aspects of conversation analysis use in communication between Astronauts and NASA Deep Space Network (DSN) under the framework. This study use qualitative descriptive method is applied in this research. The data are collected by transcribe their utterances from Youtube and transcribing their utterances directly into written text. The result of this study shows that 6 types of adjacency pairs, from the data analysis found there are 47 utterances that consist of adjacency pairs. From the findings, there are 7 requesting – agreement, 11 assessment – agreement, 17 question – answer, 1 compliment – acceptance, 1 complaint – apology, 10 offer - acceptance for adjacency pairs.

Keywords: Conversation analysis, adjacency pairs, assessment agreement, offer acceptance.

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1. INTRODUCTION

Conversation is an activity which is transferring and exchanging the information whether it is verbal or nonverbal in social life. Conversation may be taken to be that familiar predominant kind of talk in which two or more participants freely alternate in speaking, which generally occurs outside specific institutional settings like religious, services, law courts, classrooms and the like (Arofah & Mubarak, 2021; Koh, 2019). To get successful in communication through conversation, it is needed particular attention in spoken interaction. Many scholars have investigated CA in different kinds of settings and contexts. One of many topics, which is interesting to be investigated, is non face to face communication, for example communication between Astronauts and NASA Deep Space Network (DSN). This topic usually investigates a communication between an Astronauts and with some peoples on earth in this case NASA Deep Space Network (DSN) as the media of sending information. Previous study found that the grounded, the officers talk much than the astronauts, and from this reason the researcher have interested to make the another research about Pilot and NASA

Deep Space Network (DSN) (Barnes et al., 2014; Biswas et al., 2018; Imbriale et al., 2004). Previous study says that participants attend to talk not for its proportional content, nor as a simple medium of information transfer, but because they care about the actions getting done through talk (e.g., asking, requesting, complaining, noticing, and so on), and the real life consequences of those actions (Amoroso et al., 2022). In the field of conversation analysis, conversation is a way of approaching social order. Conversation is far from the apparently unorganized and random object it might seem at first. It is a locus for special interaction where speaker-change recurs (occurs), parties talk at time; transitions with no gap and no overlap are common (Anggeraini, 2018; Yusro et al., 2020).

Previous study states that adjacency pairs are a fundamental unit of conversational organization and a key way in which meanings are communicated and interpreted in conversations (Dowell et al., 2020). Adjacency pairs are utterances produced by two successive speakers in a way that the second utterance is identified as related to the first one as an expected follow-up to that utterance (Dementyev, 2016; Ly & Jung, 2015). For example: the conversation among astronauts and NASA Deep Space Network (DSN). Conversation interaction will be used when the astronauts gives information, such as information back to earth using Deep Space Network (DSN), a collection of big radio antennas (Massaro Tienze et al., 2023; Zhao et al., 2019). The antennas also receive details about where the spacecraft are and how they are doing. NASA also uses the DSN to send lists of instructions to the spacecraft.

Basically, NASA Deep Space Network (DSN) is operated in correlation with the ground of non-face conversation which happens between an Astronauts and NASA Deep Space Network (DSN) who operated their activities from the different workplaces, NASA Deep Space Network (DSN) is as communication sessions (Onorato et al., 2020; Turan et al., 2022; Zhao et al., 2019). NASA spacecraft are exploring our planet, our solar system and beyond. How do they tell us what they find out there? Spacecraft send information and pictures back to earth using the Deep Space Network, or DSN, the DSN is a collection of big radio antennas in different parts of the world (Dondeti et al., 2020; Mansoor et al., 2019).

In this conversation Question – Answer is used when Capcom seek the information from Astronauts and then Astronauts give respond with give information clearly to the Capcom choosed the communication between Astronauts and NASA Deep Space Network (DSN) was interested as the object of data because of some reasons. First, the information transfer between NASA Deep Space Network (DSN) and the Astronauts have specific strategies and unique codings, which make the conversation is interesting to be analyzed for further to get the most dominant types adjacency pairs appeared in their communication and break the strategies and use in the conversation. Second, after doing pre- analysis the conversation, Astronauts and NASA Deep Space Network (DSN) used clear in their communication immediately. Therefore, this study aims to analyze aspects of conversation analysis use in communication between Astronauts and NASA Deep Space Network (DSN) under the framework.

2. METHODS

This In this research, descriptive qualitative method is applied because the data of this study are delivered in the form of words or sentences. Qualitative research is descriptive. It is aimed to give brief descriptions about the phenomena happens. By using descriptive qualitative method, the data is simply described about what aspects of conversational interactions found and occurs in the conversation between Astronauts and NASA Deep Space Network (DSN) (Huberman & Miles, 2012; Nassaji, 2015). The following stages were drawn used by the researcher as follows: 1.) Downloading the data from NASA Official Youtube

Channel <https://www.youtube.com/watch?v=DejhGSEu8wk&t=146s>. 2.) Observing and listening to the conversation between Astronauts and NASA Deep Space Network (DSN) by doing noted their utterances. 3.) Transcribing their utterances directly into written text. 4.) Reading the script of the conversation carefully and writing down the entire sentences in which belong to conversation analysis aspects. 5.) Select them which based on the conversation aspects of conversational interactions. 6.) Finding the conversation aspects of conversational interactions of the utterances. To answer the research questions, the researcher use qualitative content analysis. In this content analysis, the writer prepare the data, define the unit of analysis, code all texts and draw a conclusion. All these activities are involve in the process of this research, the conversation between Astrounauts and Nasa Deep Space Network (DSN).

3. RESULTS AND DISCUSSION

Results

Based on the research questions, the results of this research are the NASA Deep Space Network employed the aspects of conversation interactions in giving command and suggestion to the Astronauts. Adjacency Pairs are mostly used in this conversation. While, Opening Conversation, Preference Organization, Turn Taking, Feedback, Repair and Closing Conversation are not used by Capcom throughout the conversation. Then, Capcom (Capsule Communicator) and The Astronaut just used Adjacency Pairs, Therefore, just one aspects of conversation interactions is used. Those aspects of conversational interactions are realized with different realization. In this conversation just Adjacency Pairs used, those aspect conversational interactions is realized in this conversation because in the space with earth there are just giving command, looking for agreement and giving a direction what astronaut will do in the space, then the astronaut giving a report to earth from the space.

Those aspects of conversational interactions are found in this conversation, those are :Adjancency Pairs occurred 47. The most aspects of Adjacency Pairs were found 17 are Question – Answer, Compliment – Acceptance was found 1, Assesment – Agreement were found 11, Requesting – Agreement were found 7, Offer – Acceptance were found 10and Complaint – Apology was found 1. The most widely available in this research are Question-Answer and the least is Complaint – Apology and Compliment - Acceptance, this occurred because the study was conducted on three people or more who ask and give something fromSpace to earth and otherwise, were doing conversation so that are contains a lot of Question – Answer. An aspect of conversation analysis is show in [Table 1](#).

Table 1. Aspects of Conversation Analysis

No	Aspects of Conversation Analysis	Σ
1	Opening Conversation	0
2	Turn Taking	0
3	Adjacency Pairs	47
4	Preference Organization	0
5	Feedback	0
6	Repair	0
7	Closing Conversation	0

According to [Table 1](#), the researcher wanted to describe the aspects of conversation interactions of conversation analysis into several part, which can be the main object in this study. Percentage of adjacency pairs is show in [Table 2](#).

Table 2. Percentage of Adjacency Pairs

No	Aspects of Conversation Analysis	Value	
		Σ	Percentage %
1	Requesting - Agreement	7	14.9
2	Assesment - Agreement	11	23.4
3	Question – Answer	17	36.2
4	Compliment – Acceptance	1	2.1
5	Complaint – Apology	1	2.1
6	Offer - Acceptance	10	21.3

From [Table 2](#), it could be seen that there were pairs of conversation occurred in the data. It result that combinations of Requesting – Agreement, Assessment – Agreement, Question – Answer, Compliment – Acceptance, Complaint – Apology, and Offer – Acceptance.

Discussion

Based on the analysis of the research, it was found that the conversation of the Astronauts and Capcom is unusual conversation, which means Capcom more frequently do the communication than the Astronauts. On the other side, the application of the aspects of conversation interactions especially in Adjacency Pairs is the most used in this interactions. The results of the previous research conducted by previous study discussed on Conversation between Pilots and Air Traffic Controllers ([de Moraes Garcia & Fox, 2020](#); [Kang et al., 2017](#)). It analyzed types of adjacency pairs and to explain functions of repetition use in communication between Pilots and Air Traffic Controllers. The result of this study was found types of adjacency pairs and to explain the functions of repetition use in communication between Pilots and Air Traffic controllers. Meanwhile, the aspects of conversation that identified in the communication between Astronauts with NASA Deep Space Network (DSN), such as Adjacency pairs ([Hasse et al., 2012](#); [Stroeve et al., 2015](#)).

Comparing to the research conducted by the researcher, the aspects of conversation interactions were found in the communication, where in this case the researcher used the video of Astronauts and Capcom as the subject and analyzed the aspects of conversation interactions used by the participants and the results are those aspects of conversation interactions are realized in this conversation. While, previous study used the transcript from the tower in Kualanamu International Airport and transcribing their utterances directly into written text ([Tarigan, 2019](#)).

In this research, in expressing the utterances, Capcom (Capsule Communicator) employed the aspects of conversation interactions in giving status, report, command and responding messages from the Astronaut. However, Capcom used just one aspects of conversation. Firstly, Astronaut request for agreement to liftoff to the space. It means that Astronaut used this aspect of conversation interactions once throughout the conversation ([Fischer et al., 2013](#); [Prebot et al., 2019](#)). Secondly, employed Adjacency Pairs in giving and responding the request from the Astronauts by giving agreement to shutdown right on time. Thirdly, another Capcom give offer to Astronaut and confirmed to go for orbit. Fourthly, Astronauts give report and asses about they velocity and what happen on space craft to the Capcom on earth. In the end of mission the Astronauts give their status and situation on space. Astronaut used one aspect in conversation. Firstly, Astronaut used Requesting – Agreement in asking for what they request from spacecraft and Capcom give respond with agreement. Secondly, the Astronaut give status and message from spacecraft to show they velocity and gave them magnificent ride, and Capcom give respond with what Astronaut said

as a agreement responding what Astronaut asses to them (Goncalves Freitas et al., 2021; Johnson, 2010). Thirdly, Capcom ask a Question to the Astronaut about how the transposition docking went? And then the Astronaut respond question from Capcom with give explanation and description about transposition docking. Fourthly the Astronaut give compliment about their ride in the space and the Astronaut said that ride was beautiful, and Capcom have accept about what Astronaut said to them (Marquez et al., 2019; Myrset & Savić, 2021). Fifthly Capcom used Complaint – Apology about feel unsatisfied on RCS usage and another capcom respond with said sorry as their apology responsd. Sixthly, Astronaut used offer about that got evasive manuver pad in space and Capcom give acceptance respond with said okay and they are ready to copy the messages.

This research can provide a deeper understanding of how communication between astronauts and the NASA Deep Space Network takes place. This is important in the context of space exploration and can be used to improve communications protocols. The results of this research can be used as a basis for developing more effective communication protocols between astronauts and DSN. This can improve communication efficiency in space missions. However, this research may only focus on a few cases or certain situations. Therefore, the generalizability of the findings to all space communications may be limited.

4. CONCLUSION

Based on findings of aspects of conversation interactions in conversation used in Astronauts and Capcom, there are three conclusions that can be drawn. The Astronauts employed the aspects of conversation interactions in asking, asses for agreement and offering to the Capcom. Requesting – Agreement, Assesment – Agreement, and Offering – Acceptance are mostly used. However, the other aspects of conversation interactions were not used by Astronauts throughout the conversation. While, Capcom to Astronauts used Assesment – Agreement and Question Answer, Capcom and another capcom mostly used Question – Answer, Offer – Acceptance, Requesting – Agreement, Assesment – Agreement and Complaint - Apology. Therefore, 6 aspects of Adjacency pairs in Conversation interactions were used.

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