

CHAPTER II

THEORY AND METHOD

2.1. Theoretical Framework

In terms of research objectives, the sub-chapters in this chapter can be outlined as follows: 1) sub-chapters 2.1.1., 2.1.2., 2.1.3., correspond to the first research objective namely to classify speech disfluencies produced by the main character of *Finding Dory*. 2) sub-chapters 2.1.2., 2.1.3., 2.1.4., correspond to the second research objective namely to discover causes of speech disfluencies produced by the main character of *Finding Dory*.

2.1.1. Psycholinguistics

Psycholinguistics, as defined by Cowles (2011: 10), is a combined field of psychology and linguistics which essentially concerns on the relation between language and how brain works to represent language. There are three basic aspects of psycholinguistics i.e. language acquisition, how people acquire language; language comprehension, how language is understood; and language production, how ideas are converted into speech sounds (Dell, 1989: 283).

Language can also function as a medium to represent mental states aside from communicative function. Cited in Cowles (2011: 14), Wundt believed that language has significant role in representing mental states. His goal was to demonstrate how human information processing, like attention and memory, might affect a speaker's ability to comprehend and to produce language.

2.1.2. Speech Production

Traxler (2012: 38) stated that speech production is a process of converting non-linguistics ideas into speech sounds by moving our muscles. Speech requires incredibly precise control over more than 100 muscles moving at once, making it the most complex physical action compared to the others that we carry out.

Levelt (1999: 3) proposed an influential model of speech production which are broke down into four broad stages: conceptualization, formulation, articulation, and self-monitoring. These stages are in sequence and interrelated. Any interruption or breakdown to these stages will lead into speech disfluency and speech errors.

2.1.2.1. Conceptualisation

Conceptualisation is the stage in which the speakers' brain activating the lexical concept they want to express starting by choosing the idea which has an existing word in given language (Traxler, 2012: 39). We might have difficulty in putting our non-linguistics ideas into word if the lexical concept we intent to express does not line up with any idea that our language provides. Therefore, we need to combine some lexical concepts to begin with (Levelt et al., 1999: 3). For example, English has a term *mare* which expresses the concept of *female horse*. To express the concept of *female horse*, we just need to activate the lexical concept *mare*. But if we want to express the concept of *female elephant*, we need to come up with combination of *female* and *elephant* because English does not have a single term for female elephant.

Traxler (2012: 43) stated that these lexical concepts are stored in the long-term memory. When activating the intended lexical concept, the other semantically related ones in the networks of concepts within memory will be activated as well. Individuals with lack of semantic knowledge might have problems during the conceptualization (MacGregor, 2008: 11). As the speech production stages are all interrelated, the interruption during the first stage will also affect the next stage.

2.1.2.2. Formulation

Formulation is the process of choosing the best way to express the idea (Traxler, 2012: 38). As stated above, the activation of intended concept will spread onto the other related ones within memory. Thus, we might have multiple representations that we should choose through a lexical selection (Levelt et al., 1999: 4). The output of lexical selection is a lemma which contains words meaning and syntactic properties that allow us to form a meaningful utterance by combining them.

After lemmas are selected, we need to generate speech sounds by selecting morphemes to activate the phonemes. As we tend to speak in syllables, the set of phonemes that we have activated should be organized to form phonological words. The final output of formulation stage is phonetic string which later are generated by the articulatory system to produce speech sounds (Levelt, 1983: 47).

2.1.2.3. Articulation

Formulation stage plays the biggest role for articulation stage. Without the articulatory system, the speech sounds could not be perceived. Thus, articulation

serves as the most crucial stage of speech production. The phonetic strings of phonological words are finally used by the articulatory system to generate the speech sounds (Traxler, 2012: 43).

2.1.2.4. Self-monitoring

During the conversation, a speaker does not only produce speech and listens to their interlocutor's speech, but they also monitor their own speech. Monitoring process allow the speaker detect some issues during their speech such as disfluencies and errors. A success self-monitoring might be indicated by repairs as the speaker realized there is problem in their speech.

2.1.3. Speech Disfluency

Fluency is defined as the regular and continuous flow of speech (Lickley, 2018: 373). Fluent speech resulting smooth flow of speech sounds without any unpredicted pauses. Speech is considered disfluent when there is an unexpected breakdown during the production process. It is normal in daily spontaneous speech. Bortfeld et al. (2001: 127) stated that disfluencies averagely occur 6 times in every 100 words. Its rate might be higher in more complex or longer sentences.

Lickley (2018: 375) classified typical speech disfluency into three major types, they involved pauses during the production process, utterances repetition, and reconstruction of utterances. These three items can be referred to hesitations, repetitions, and repairs. The segment below discusses the major types of disfluencies along with the sub-types.

2.2.1.1. Hesitations

Hesitations as the simplest form of disfluency can be divided into silent pauses, filled pauses, prolongations, and lexical fillers. The length and complexity of utterances might affect the production of hesitations. Also, when the speaker requires to retrieve the information from long-term memory and they find it difficult doing so, they might produce hesitation as a mean to have more time. Hesitations may be driven by conceptualisation difficulties when a speaker hesitates about the target message resulting from the lack of semantic knowledge (MacGregor, 2008: 10). Conceptualisation difficulties will also lead to formulation difficulties since each stage of speech production are interrelated and in sequence.

1. Silent Pauses

Silent pauses are the simplest form of hesitations yet they are the most difficult to define in term of pause duration. In term of duration, Goldman-Eisler (1961: 233) have made deals that the minimum duration of silent pauses is 250 ms. The shorter duration might be considered as fluent pauses. Silent pauses might be an indication that the speaker requires additional time to find the proper words to express since they have difficulties in planning their speech.

2. Filled Pauses

Filled pauses such as *um* and *uh* are assumed to have no function in the utterances. Similar to silent pauses, they serve as a sign that the speaker needs more time to think of the upcoming words. Often times they occur along with silent pauses, as in example “I was *um*... covering my face.” Here, the speaker needs additional time to come up with the right words.

3. Prolongations

Prolongations function as a sign of hesitation by extending the word into a longer duration to maintain the articulation as in example ‘to’ pronounced ‘toooo’ (MacGregor, 2008: 7). They also indicate that the speaker finds it difficult to retrieve the upcoming word. Just like silent pauses, they are also difficult to define because of the duration issue (Lickley, 2018: 376)

4. Lexical Fillers

Lexical fillers typically add excessive meaning to the utterances. They also serve as a medium for the speaker to have extra time planning the speech in order to prevent the turn-taking process (Goodwin, 1981; Schegloff, 1987 as cited in Shriberg, 2001: 156). The most common forms of lexical fillers are “well, like, I mean, you know.”

2.2.1.2. Repetitions

Based on the functions, repetitions are divided into retrospective and prospective repetition. Retrospective repetitions are a tool for re-forming the speech after interruption from the other disfluency that occur alongside with repetitions. While prospective repetitions function as a sign that the speaker finds difficulties during speech production (MacGregor, 2008: 8).

Clark and Wasow (1998: 209) suggest that repetitions typically occur in the function words since function words are often in the beginning of the utterance, highly frequent, and easier to access. As in this following example of

prospective repetition “*did - did* they leave me?” here, the speaker repeats the function word ‘did’ two times as a sign of planning difficulty.

Repetitions are the outcomes of formulation difficulties when the target words after repetitions are probably unfamiliar, hard to retrieve, complex, and low in accessibility for the speaker (MacGregor, 2018: 10).

2.2.1.3. Repairs

Repairs as the most complex type of disfluencies are indications of a successful self-monitoring process as the speech production process has gone wrong and the speaker needs to make correction of their previous utterance (MacGregor, 2008: 16). They sometimes involve a pause followed by a change of some part of utterance or the whole utterance.

Levelt (1983: 44) suggests that repairs consist of three major parts: original utterance, editing phase, and repair. Original utterance is in which the error occurs. It contains a reparandum, the error point which will be corrected. The editing phase is the period of hesitation or the point where speech is interrupted. The last one, repair, is the correct version of the original utterance.

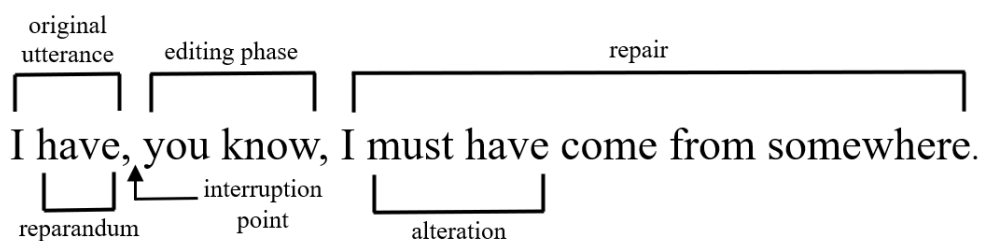


Figure 1. Structure of repair. Adapted from Levelt (1983: 45)

Levelt (1983: 44) also states that repairs are divided into overt repairs and covert repairs. If the repairs occur before the speech has been articulated, it is

covert repair. While overt repairs occur after articulation, indicating that the speaker has detected error and decided to make change.

According to Lickley (2018: 377), repairs have three sub-types i.e. deletions, insertions, substitutions. In more complex cases, repairs occur in combination of these sub-types. Now let's take a look into the brief explanation of repairs' sub-types.

1. Deletions

Deletions, also known as false start (Shriberg, 2001: 156), are produced when the speaker abandons the original utterance and continue to a whole new utterance without revising, repeating, or inserting the original utterance (Lickley, 2018: 377). In this case, the original utterance is no longer relevant to the current conversation. In this following example, the speaker decides to changes plan and abandons the first utterance: "I'm looking for – please help me."

2. Insertions

The speaker inserts additional utterance to be more specific or to complete the original utterance (Lickley, 2018: 377). The additional utterance typically involves repetition of some parts of the original utterance. "A truck! They're in the truck!" here, the listeners might not get the message if they only hear the first utterance which is incomplete as it only contains a noun. The speaker decides to add specifier by saying "they're in the truck" to make it clearer.

3. Substitutions

Substitutions refer to correction of mistake from the original utterance. Here in the example, the speaker chooses the wrong lemma and quickly decides to make a correction in the next utterance: “they’ll be – it’ll be alright,” where ‘they’ serve as reparandum while ‘it’ is the alteration.

2.1.4. Short-Term Memory Loss

2.1.4.1. Short-Term Memory Definition

Short term memory refers to a memory system with limited storage and duration. It can maintain information or memory chunks for a short time, averagely up to 30 seconds. This memory system is useful to filter the crucial information so that brain stores information effectively as its storage is limited. Information in short-term memory is either forgotten or transferred to long-term memory in order to save them permanently. If the brain considers the information is essential to keep, it will be transferred to long-term memory. This process of transferring information from short-term memory to long-term memory is called memory consolidation.

2.1.4.2. Short-Term Memory Loss

Short-term memory loss, scientifically, is a process of holding small number of memories for a few seconds. It is a condition of people who is easily forgetting recent event or information they just received. They find it difficult to store new information to long-term memory and to generate new memories. This loss of new received memories is also called fixation amnesia which is defined as the inability to form new memories (Casella, 2019: 5). The sufferers typically ask

the same question frequently, having difficulty to come up with the right words to express, and forget what they just saw, read, or heard.

People who suffer from short-term memory loss will find it difficult to retrieve memories from long-term memory as well. This might be caused by the damage of hippocampus that is responsible in retrieving and forming memories and probably interference from other memories. Furthermore, interference from other memories will also interrupt the memory consolidation process.

2.2. Methodology

2.2.1. Research Design

This study is conducted using qualitative quantitative method, as it descriptively explains the phenomenon of speech disfluency and its relation to short-term memory loss and also involved quantifiable data to interpret the phenomenon.

2.2.2. Procedure of Collecting Data

The procedure of collecting data in this study can be summarized as follows:

1. I watched the entire *Finding Dory* movie (2016).
2. I downloaded the transcript from https://findingdory.fandom.com/wiki/Finding_Dory/Transcript
3. I copied the transcript to Microsoft Excel.
4. I created a filter for the dialog based on the characters.

SPEAKER	TYPE	SUB-TYPE	LEFT	KWIC
dory	repairs	insertion		MY FAMILY! I remember my family!
dory	repetition	NA	guys, you gotta help me,	guys! Guys? Hello? Guys,
marlin				Dory!
dory				Oh!
marlin				Dory!
dory				Where did you go?
marlin				You were the one to go!
dory				My parents, I remember them!
nemo				What? What did you remember?
dory	hesitation	silent_pause	I remember them	...

5. As this research focuses only on Dory's utterances, I filtered out Dory's dialog.
6. I classified disfluencies types and sub-types based on Lickley's theory by creating a filter. The table below shows how I filtered them out.

Table 1. Filter of disfluencies types and sub-types

Type	Sub-type
Hesitations	Silent pauses
	Filled pauses
	Prolongations
	Lexical fillers
Repetitions	NA
Repairs	Deletions
	Insertions
	Substitutions

7. I
rewatched the movie to correct the transcript.

8. I corrected the transcript, particularly the part where Dory produces silent pauses which are not in the downloaded transcript. I marked silent pauses with triple dots [...]. This example below shows the difference between the downloaded transcript (1) and the one which I corrected (2).

1) Okay. I was going somewhere. The question is where.

2) Okay. I was going somewhere... the question is where.

After listening to the original audio, I discovered that the intonation of utterance "I was going somewhere" does not end with full stop. It is shown by the next utterance which functions as the continuation.

9. After the filter for disfluencies types and sub-types are applied, I calculated the total occurrences of disfluencies produced by Dory and I discovered 216 occurrences.

2.2.3. Procedure of Analyzing Data

1. I chose two examples of each disfluencies sub-types to be discussed in context. I put a timestamp above the examples.
2. In the discussion regarding the first research objective, particularly in the analysis of hesitations disfluency, I compared my research to the previous related research as the findings have a little similarity in which hesitations have high frequency. I only compared one research as I discovered way little related research.
3. As the second research objective is to discover the causes of each disfluencies' types related to short-term memory loss, I analyze which production stage that is interrupted and link it with short-term memory loss issue. The utterances examples are mostly taken from the first sub-chapter of discussion as in the first section I only discussed the utterances' context which contain disfluencies.
4. I drew the conclusion based on the analysis that has been done.

