CHAPTER II

LITERATURE REVIEW

2.1. Translation Process in Translation Studies

2.1.1. Early Studies on Translation Process

Translation process is one of the areas in translation research (Chesterman, Williams, 2002:23). The term *translation process* began to arise in the field of translation studies in the middle of 1950s while the trend of research on translation shift (one of product-oriented research) was in its golden age. The interest in the process of translation, i.e. how a translator transfers the meaning and the messages from ST to TT, brought the movement of research in translation: product-oriented research to process-oriented research. However, the research on translation process was still in the shadow of the product-oriented research. Since 1950s, an attempt to categorize the translation process was done by using a variety of linguistic approaches such as a comparative stylistic analysis (French to English) proposed by Vinay and Darbelnet (1958), and translation shift analysis proposed by Catford (1965) and Czechoslovakia (1963) (Munday, 2008: 56-61).

The attempt brought the translation process research into the grey line which means the basic approaches of it were still influenced by product-oriented research approach such as translation shift analysis. This is strongly

explained by Munday in his book *Introducing Translation Studies* through the statement below:

> Translation shift analysis seeks to describe the phenomenon of translation by analyzing and classifying the changes that can be observed by comparing ST-TT pairs […]. It is a means of describing what constitutes the translation product but there are limits about what it can (or even attempts to) tell us about the actual process of translation. (Munday, 2008: 63).

This thought is supported by the cognitive theorist, Kussmaul, who thinks that when comparing TT to ST, the researchers can at best know what had happened in the mind of translator during the translation process, not what actually happens (Kussmaul, 1995: 177).

Some researchers who were unsatisfied with the model tried to seek another means in order to tell them the actual process in translating the text. This activity leads them to investigate the cognitive aspect of translator. They borrowed a method from the field of psychology: Thinking-aloud Protocols (TAPs). By using this means, researchers could access the translators' "black box" since the method required the subject to utter everything that goes on in their mind while translating the text (details of TAPs are explained in subchapter 2.2. and 2.3.). Since then, research on translation process was known as the research on translators' cognitive aspect.

2.1.2. Recent Studies on Translation Process

Since the focus of translation process research is the translators' cognitive aspect, the definition and aim of the research itself are set clearly and briefly. This research studies the translators' mental aspect and its aim, of course, is to "understand the nature of the cognitive processes involved in translating, with a focus on the individual translator" (Dimitrova in Alvstad et.al, 2011: 1).

This more empirical study on translation process was first studied in the middle 1980s by Krings and Sandrock by proposing a new method which would investigate the translators' cognitive aspect, TAPs. They, who were unsatisfied with previous method, thought that TAPs would give them the more actual data for their research on translation process. Their research, which explained and defined problems and strategies in the translation process, inspired other researchers to deeply investigate the similar or more variant case such as the translator competence, the comparison between professional and non-professional translators in translating the task, and translator's expertise. Up until now, the study on translation process is still related to that method since it is frequently used for the study. Moreover, there are methods of this study which are expanded from TAPs to investigate other deeper questions on translation process.

2.2. Translation Problems in Translation Process

While translators perform the process of translating the text, they likely spend more attention on particular words or sentences to be translated. In his research, Krings assumes that the main reason for giving more attention on

some units (words or sentences) is because of the lack of language proficiency or lack of transferring skills. He adds that this activity can indicate the problems encountered by the translator. Based on this assumption, he then defines **problem** as items or units that received more attention during the translation process (both in comprehending the ST and in producing the translation/TT) than other items or units (Krings in Schmidt, 2005: 34). In his research on eight German learners of French (1986), he mentions some problem indicators which later can help researcher to indicate problems faced by non-professional translators, for instance, problems in translating proper names, metaphors, terms, and etc. In the research entitled The Translation of instructive texts from a cognitive perspective, Göpferich adds that Krings divides the problem indicators into two parts: primary problem indicators and secondary problem indicators Krings in Göpferich, 2002: 8).

Primary problem indicators are those problems which are explicitly verbalized by the participant when doing the verbalization. These indicators are (1) participants' utterances which describe their translation problem, e.g., "here I don't know what it means exactly"; (2) using some references such as dictionaries and internet connection; and (3) gaps in the TT as a result of their not being understand of how to translate particular units in the ST.

Meanwhile, the **secondary problem indicators** are those problems which are implicitly given by the participant by showing particular phenomena during the process of verbalization. These phenomena make the observer assume

that there might have been a problem in the translation process. The examples of the indicators are (1) unfilled pauses of duration of at least three seconds; and (2) particular vocalization of non-lexical phenomena such as sighing. Since the secondary problem indicators only give the probability (making the observer assume), Krings counts those phenomena as the translation problems if there is **only one primary problems indicator** or there are **the combination of at least two secondary indicators**. Thus, if there is only one secondary problem indicator, the passage in the transcript is not counted as an example of a translation problem.

Within these rules, Krings makes some exceptions. First, if there are some sections in the transcript of verbalization in which at least two secondary problem indicators occur but they don't tell any clear information about the cause of the potential problem, they are not counted as instances of the translation problems. Second, If participants discuss a problem they have worked on earlier in the translation process (such as in the reading aloud session), the earlier occurrence of the problem is counted as a problem indicator. This means that one additional secondary problem indicator for same item that caused the problem qualifies that particular passage in the transcript as a recurring instance of a translation problem (Krings in Göpferich, 2002: 8).

While analyzing the problems by implementing the problem indicators, comments whether the participant liked the text or not are not counted as problem indicators. Göpferich adds Krings opinion that the problems may occur in any session of translation process (e.g. in reading comprehension or in

the verbalization/producing the translation). The instances of the problem begin when participant know well the existence of the problem. Therefore, start tag of the problem occurrence is placed immediately before the utterance or action reveals the problems. it ends when the participants have solved the problems or turn to something else (Krings in Göpferich, 2002: 8-9).

2.3. Translation Strategies

As the problems arise, the attempt to overcome them may come during the process. Experts name this activity as the translation strategy. Löscher defines it as "a potentially conscious procedure for the solution of a problem which an individual is faced with when translating a text segment from one language into another" (Löscher in Bernardini, 1999: 4). Jääskeläinen in her study in 1993 proposes classification strategies applied by professionals and non-professionals in translating the text. The professionals frequently use the global strategies while the non-professionals use the local strategies (Jääskeläinen in Bernardini, 1999: 4). Furthermore, Chesterman in *Memes of Translation* defines strategy as "a process which yields a solution to a translation problem by forms of explicitly textual manipulation." (Chesterman in Branco, : 10). In his book, Chesterman divides the translation strategies into two parts: global strategies and local strategies.

Global strategies deal with how the TT should affect the receiver. If translators use these strategies, it means that they apply the overall strategies to a

text as a whole, not part by part. By using the global strategies, they overcome the problem at the general level such as "how to translate this text or this kind of text". He gives three example of global strategies such as (1) "the translator's initial decision about the general nature of appropriate relation between target and source text and about 'how freely to translate'", (2) the general issue of dialect choice (whether/how source-text dialects are represented in the TT), and (3) whether an older source text should be modernized or historicized in translation (Chesterman, 1997: 90).

The **local strategies**, which commonly used by the non-professionals, deal with how various translation problems should be handled. When applying these strategies, the translators don't translate the text as a whole but part by part (words, sentences). Chesterman adds that the local strategies are usually used to solve the problem at the specific level such as "how to translate this structure/ this idea/ this item" (Chesterman, 10097: 90). He then mentions some strategies which are included in the local strategies of translation (Chesterman, 1997: 94)) as described below.

2.3.1. Literal translation

In translating the text, it is frequently found that the translator follows the ST form as closely as possible without changing the grammatical aspect. For example, *kamu mati* is translated as *you die*. This is what Chesterman called as literal or words-for-words translation. He adds that many translation

theorists think that this is the "default" strategy since the translator does not change any grammatical aspect from ST to TT.

2.3.2. Loan translation

Loan translation is defined as borrowing the term of ST into TT. The translator can adopt and adapt the terms when translating ST to TT. It is "adopting the term" if s/he directly borrows the term from ST into TT. In other words, s/he does not translate it at all. For example, the Indonesian word *rambutan* is translated as *rambutan* in English since the fruit doesn't grow in Europe or America. It is "adapting the term" if s/he translates the source term with its adaptation in the target language. For example, the English word *university* is translated as *universitas* in Bahasa Indonesia.

2.3.3. Transposition

Transposition is translation of a ST expression into a TT expression which involves change in grammatical structure or in word class such as noun to verb and adjective to adverb. Here is the example:

Cara bernyanyinya **sangat indah** dibandingkan dengan cara bernyanyi ketujuh peserta lainnya.

She sang **beautifully** among the other seven contestants.

From the example above, we can see that *sangat indah* is an **adjective**. When it is translated to English, it becomes *beautifully* which is a **noun**. It means there is a change in the word class from adjective to noun.

2.3.4. Unit shift

Chesterman borrow the term "unit shift" from Catford (1965). It means there is the shift or change in syntactic unit levels (e.g. morpheme, word, phrase, clause, sentence, paragraph) of the source language when they are translated into the target language. Here is the example.

Ada sebuah rumah tua yang terbuat dari kayu. **Rumah itu terletak dua blok dari rumah Ana**. (independent clause)

An old wooden house **located two blocks from Ana's house**. (phrase)

The example above shows that the independent clause in the ST is changed to be phrase in the TT.

2.3.5. Phrase structure change

This strategy is used when the translator changes the internal structure of the noun phrase or the verb phrase of the ST.

2.3.6. Clause structure change

It means a change in the internal structure of the ST clause when it is translated into the TT. This change includes verb changes from active to passive, finite to nonfinite, and transitive to intransitive. Here is the example:

Berbagai upaya **telah dilakukan** pemerintah untuk meningkatkan kualitas pendidikan. (passive)

The government **has done** some efforts to increase the quality of education. (active)

2.3.7. Sentence structure change

It means the change in the structure of sentence unit. This strategy usually shows a change in the relationship between main clauses and the subordinate clauses. It can be seen when the translator divides a sentence in the ST into two clauses or more in the TT. Here is the example:

Kegiatan ekstrakurikuler wajib dilaksanakan setiap hari sabtu pukul 08.00-10.00. Ekstrakurikuler tersebut meliputi Pramuka dan PMR. (two sentences)

The obligatory extracurricular activities such as Scout and Red Cross are held every Saturday fro 8 a.m. to 10 a.m. (one sentence).

2.3.8. Cohesion change

This strategy allows the translator to change the reference of any unit (noun, pronoun, etc.) within a single or between sentences in order to make it/them cohesive. This can be done by doing ellipsis (change the direct reference of noun or pronoun with something related to the previous text that can be understood by the reader of the TT), substitution or repetition. Let's see the example below.

Universitas Negeri Jakarta menawarkan berbagai program studi untuk jenjang S1. Calon mahasiswa dapat memilih satu **di antaranya**, sesuai dengan minat mereka.

State University of Jakarta offers various study programs for undergraduate level. Students can choose one of **those programs** based on their interest.

In the example above, pronoun di antaranya in the Indonesian ST refers back to "study programs" in the previous sentence.

2.3.9. Synonymy

This strategy means translating a ST word or expression with a target language expression that is nearly, but not completely. A synonym is only appropriate where literal translation is not possible and because the word is not important enough for componential analysis. For example, good morning is translated as *selamat pagi* in Bahasa Indonesia, not *baru pagi*.

2.3.10. Antonymy

This strategy means translating a term or a word in the ST by using the opposite meaning of the term or word itself (antonym) combined with the negation. For example, *tas ini* ***mahal*** is translated as *this bag is* ***not cheap***. The word "mahal" in English is "expensive". Thus, when the translator uses this strategy, s/he uses the antonym of "expensive", which is "cheap", and combines it with the negation "not".

2.3.11. Hyponymy

This strategy means translating a word in the ST by using the hyponym or the hypernym of the word itself. A hyponym is a member of larger category of word while a hypernim is the head category. For example, rose, lily, and orchid are in relation of flowers. This means that *rose, lily,* and *orchid* are the hyponyms of flowers while *flowers* is hypernym *of rose, lily*, and *orchid*. When this strategy is applied on translation, the translator may intend to make the word is well received in the TT. The example could be like this:

Dia memberikan neneknya rangkaian **bunga mawar, lili, dan anggrek**.

She gives her grandmother **a bunch of flowers**.

2.3.12. Distribution change

In this strategy, the meaning (semantic component) of word/phrase/clause in the ST is distributed more by or fewer in the TT. If the translator distributes it more, s/he adds more words in the TT (expansion). Meanwhile, if s/he distributes it fewer, s/he compress or omit specific word in the ST (omission). For example, *she is* ***beautiful*** is translated as *dia adalah* ***gadis yang cantik***.

2.3.13. Paraphrase

It means explanation of meaning in the ST by using other words or expression in the TT. For example, *would it be possible and pleased for you to help me translating this book* is translated as *tolong terjemahkan buku ini*.

2.3.14. Cultural filtering

This strategy is frequently used to translate particular terms in the ST which contain cultural aspect of the source language itself. When the translator translates the cultural-bound term, s/he uses the special term in the TT which is culturally similar and perceived by the target readers. The example can be found in translation of a kind of food which is culturally varies from one country to another. For instance, translating Indonesian food, *soto*. To translate this term into English, translator must aware the cultural aspect bounded in this term. Since there is no *soto* in England, the readers may unfamiliar with this food. However,

soto is quiet similar to soup which is well known in England. Therefore, *soto* can be translated as *soup*.

2.3.15. Information change

This strategy allows the translator to add or delete some information of the word in the ST when it is translated to the TT. For example, the clause *sekarang dia tinggal di Bekasi* is translated as *she now lives in Bekasi,* ***suburban area near Jakarta***.

2.4. Previous Related Studies about Problems and Strategies in the Translation Process

Talking about studying the translation process, the major issues which generally occur in the researchers' mind are the problems faced and the strategies used by the translators (professionals and students) when performing the translation activity. Such researches have been done by several researchers who had the interest in the study of the translation process. In 1984, Deschert and Sandrock investigated the translation process of an advanced university student of English philology. They investigated the problems faced by that student in translating the foreign language textbook designed for the tenth grade students by recording the time the student spent thinking aloud about each translation unit such as word, phrase, and clause (Kiraly, 1995: 43).

Other similar researches were done in 1986 by several researchers such as Krings and Olshtain. In his research, Krings investigated the translation process of eight advanced students studying French. He tried defined and classified the problems encountered and strategies used by them when translating the translation task for the study, just like what they usually did in the classroom. Krings' study showed that by asking the subjects to verbalize what came across their mind at the time they translated the text, he got their actual cognitive process where problems and strategies took place.

Meanwhile, Olshtain investigated difficulties that the translators encounter when translating nonlexicalized English compounds into Hebrew equivalents (Krings, 2001: 83)

The other study was conducted by Gerloff in 1988 as his thesis for PhD in education. Unlike Krings, Gerloff investigated and compared the translation process between bilingual speakers (English-French) who had no translation experience, students of French, and professional translators who usually translated only French-English. Her finding was quite significant: different group has different problems in translating the text, as Schmidt says:

> The most important research, I believe, is her finding that **more experienced translators** (experience is here defined in the context of translating being an innate ability in bilinguals), such as both the professionals and bilinguals in her sample, **do not necessarily translate more easily or faster than the less inexperienced translators, here defined as the foreign language students**. […] she concluded that experienced translators are more aware of the complexity of any problem they encounter and also their solutions, and in addition set higher standards for their performance than novices. (Schmidt, 2005: 22-23)

The more recent study about problems and strategies in the translation process was the study conducted by Susanne Göpferich in 2002 (see Mees, et all, 2002: 5) and Barbosa and Neiva which was published in the book *Triangulating Translation* in 2003. Both of them studied the same thing: comparing the problems and strategies of students and professional translators in translating the text. However, Göpferich combined the product-oriented and process-oriented analyses to reveals what types of problems the participants experienced, what type of errors they made, whether they reflected on the translation units in which errors occurred, and to what extent the participants proceeded in a strategic manner (Göpferich in Mees, 2002: 5). On the other side, Barbosa and Neiva only used the process-oriented analysis. Their goal were describing and explaining kinds of problems faced by their undergraduate students which don't have any formal training in translation and observing the steps they took to solve the problems. The same observation was also conducted by using different subjects: the professional translators (Barbosa and Neiva in Alves, 2003: 139-140).

2.5. Think Aloud Protocols (TAPs)

Think aloud protocol (TAP/s) is a well known method in the field of psychology which is frequently used to investigate human's cognitive process. It is a kind of verbal report data. Chronologically, it was developed from the older introspection method, a method that allows the observer to observe events that

take place in human's consciousness (van Someren et.al, 1994: 29). Through the years, the method had been developed by some psychologists such as Claparade (in his article *Die Entdeckung der Hypothese*, 1932), Duncker (*Zur Psychologie des produktiven Denken*, 1935), and Newell and Simon (1972) (Kussmaul, 1995: 178; van Someren, 1994: 31). In the beginning of 1980s, TAPs became so popular since many researchers use it to investigate human's cognitive process in doing particular activities.

It was Ericsson and Simon who propose this method in their article in 1984 entitled *Protocol Analysis*. Through this article, they successfully assured others about the reliability and validity of TAPs. In 1993, the article was revised with the title *Protocol Analysis: Verbal Reports as Data*. In this article, they explain briefly the definition and history of TAPs, its focus and significance, research procedure by using TAPs, etc. In other word, the article tells the readers about how this method works.

Ericsson and Simon define TAPs as a method to access human's cognitive aspect by asking the subject to verbalize what goes on in their mind about the task (problem-solving, for instance) at the time s/he attends to it (Ericsson and Simon, 1980: 218). This protocol, which is known as concurrent verbalization, gives the researcher the information in subject's STM where the cognitive process lies. The information then, related to problem-solving case, will tell the researcher about how the subject solve the problem. The simple schematic experimental set-up for a thinking-aloud study of cognitive processes below

(Krahmer and Ummelen, 2004: 3) will explain about the position of subject and researcher or experimenter during the process verbalization.

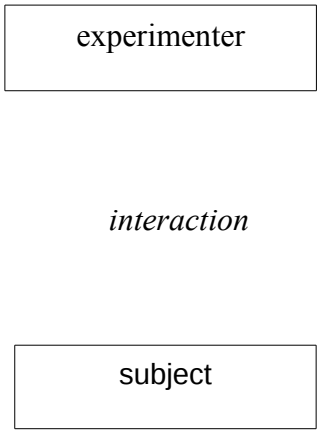

Figure 1. Schematic experimental set-up for a thinking-aloud study of cognitive process (simplified by Krahmer and Ummelan)

Figure 1. shows that the focus of attention (grey) is the subject's STM. During the process of concurrent verbalization, subjects are asked to verbalize their thoughts and the interaction between subject and experimenter is under the procedure. The procedure, which is proposed by Ericsson and Simon in his article, requires the monologue interaction done by the subject. It means that the subject has to continuously verbalize his/her thought alone without the interruption from the experimenter. In this case, all the experimenter has to do is just listening. While listening, the experimenter is allowed to take notes and the

important thing is recording the subject's verbalization which will be transcribed for the analysis.

Listening and not interrupting the subject while verbalizing is important since verbal data of the subject reflects the contents of her/his STM. If the experimenter interrupts the subject by asking something less important, the subject may not focus of what they think and verbalize. As the effect, the verbal data will be broken (unsuccessful concurrent verbalization). Therefore, Ericsson and Simon think that "verbalizations that follow an intervention have a higher risk of being unreliable" (Ericsson and Simon in Krahmer and Ummelan, 2004: 3). The data then, is not allowed to be used for further analysis.

In spite of that case, Ericsson and Simon give one reasonable excuse for the interruption. The experimenter is allowed to interrupt the subject in case s/he keeps silent for long time (more than twenty seconds). This interruption is essential as the silent subject will make the verbalization unusable. When the verbalization data is unusable, there are significant parts of the cognitive process in subject's STM which may not be tracked down. Thus, such interruption is needed to avoid the chance of losing the useful verbalizations. The experimenter has to remind the subject if s/he remains silent for long time during the verbalization (thinking-aloud). Ericsson and Simon suggest the experimenters to only use the phrase "keep talking" in case they find the subject falls silent in the thinking-aloud process (Ericsson and Simon in Krahmer and Ummelan, 2004: 3).

Since thinking-aloud process seems unnatural (subjects have to talk aloud about their thought alone), Ericsson and Simon recommend an initial practice or "warming up" session in which the subjects are taught to verbalize their thoughts.

> During warmup, the experimenter feels free to interfere with and disrupt the subject, while during the experiment, he should be very concerned not to interfere. (Ericsson and Simon, 1993: 82)

Moreover, it is important for subjects to know well the difference between describing what they doing such as "I will put this pen on the table" and thinking-aloud such as "I think that this term is quite problematic to be translated".

2.5.1. **TAPs in the Studies of Translation Process**

TAPs: The First Method Used in the Empirical Study of Translation Process

2.5.1.1. Definition and History

In term of the study of translation process, TAP is defined as a method of data collection from participants' verbalization in translating the translation task in order to obtain the information taking place in their STM. The information can be the problems encountered in translating and the problem-solving. During translating, the researchers record the subject's verbalization or in addition, subject's behavior during translating (looking up the dictionary, playing the pen while thinking, and etc.) by using the video recorder. These audio records

later are transcribed using transcription convention like Dimitrova used in her research (Dimitrova, 2005: 80). The transcription convention can be seen in Table 1. The transcription is then analyzed to obtain the information of subject's STM. The examples of the transcription can be seen below.

Fredrik (TS)/TAPs: what should come out of this are actually facts / not so much / the nuances of language/or that a word is/is perfectly correct/ ehm/ besides/ I think I want to distance myself even more / from the Soviet /ehm / way of writing /yeah / I want to remove that somehow

(Dimitrova, 2005: 111)

TAP 980513: ok I'll start reading through the whole text from the beginning and then I'll search for things I don't understand// I'll underline some things here// we have a word dilogia/ which I don't understand at all/ aha/ apparently this is the word which does not exist in Swedish trilogy exists but no dilogi I really do not know that

(Schmidt, 2005: 141)

Transcription Convention	**Description**
/	Unfilled pause in the verbalizations of less than 2 seconds
(5s)	Unfilled pause with length in seconds
[…]	Parts of the verbalizations omitted
( )	It's used to give the information about subject's behaviour during the process of verbalization.
?	Uncertain transcription
Italics	It's used for whispered utterances
CAPITALS	They are used for parts of utterances pronounced with greater emphasis
<u>Underlining</u>	It indicates that the participant is writing at the same time s/he

verbalizes the words.

Table 1. Transcription Convention

In the studies of translation process, TAP was introduced in the middle of 1980s by German researchers who wanted to collect data for their research. The data needed was about the actual cognitive process of language students while translating the translation task. The pioneers were Sandrock (1982) and Krings (1986) who use this method and at the same time show others the "possibilities and limitations of this method of elicitation" (Schmidt, 2005: 21). As described in the subchapter 3.2., Krings used verbal report data or TAPs which required the subject to verbalize what's on their mind. Hence, by using TAPs, Krings obtained the rich data from the students. This rich data was very useful for the analysis. Moreover, his study set the standard design for other researchers who intended to conduct the similar study.

Krings' study opened the gate of empirical research on translation process. As we know, many researchers used this method for similar studies such as the studies conducted by Gerloff in 1988, Löscher in 1991, and Barbosa and Neiva in 2003.

The next study which used TAPs as data collection was conducted by Tirkkonen-Condit (1989; 1991), Jääskeläinen (1989; 1991), Séguinot (1989). Both of them had the similar study case with Gerloff. They compare the translation process in professional translators and the students or laymen. Those studies were conducted by collecting the TAPs of the subjects. Meanwhile

Lörscher, in his postdoctoral thesis in 1991, investigated the translation process of first- or second-year students of English at university. He assumed that TAPs or concurrent verbalization would give the richer data than the written translation (Schmidt, 2005: 23-25).

The translation process studies on the basis of TAPs became wider. Many researchers were interested in identifying and defining the translation problems and consequently strategies to solve the problems. Contrasting the translation process of the different categories of the subjects, e.g. professional translators and students or even bilinguals without formal training of translating, and defining the translator competence were also dominant topics of research at that time. More specific topics were following such as semantic change and the reading and comprehension process that is part of the translation process conducted by Englund Dimitrova, Dancette, and Kussmaul, expertise and expilicitation (Dimitrova, 2005), and a longitudinal study in translation process (Schmidt, 2005).

2.5.1.2. The Development of TAPs (Other Methods)

In 2005, Krings classified the more detail methods for data collection for translation process studies. He classified them based on the time of data is taken: offline methods and online methods. The offline methods are the data taken after the process of translating the text while the online ones are those

taken after the process of translating the text (Krings in Dam-Jensen and Heine, 2009: 3).

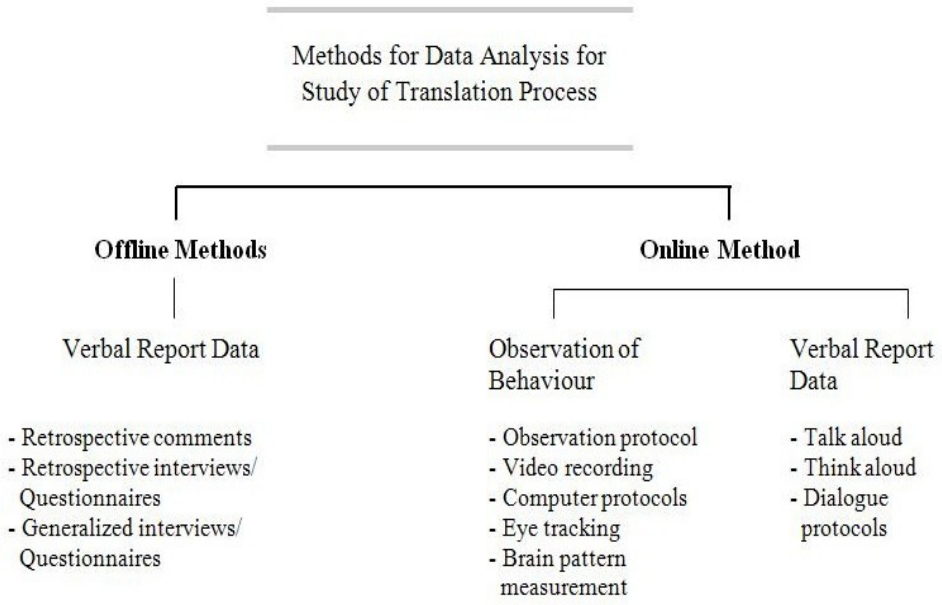

Figure 2. Methods for data analysis for study of translation process
(Krings in Dam-Jensen and Heine, 2009: 33)

From the previous section we know that the first verbal report data used as a method of data collection for the empirical study of translation process is Think Aloud Protocol or TAP. As the specific topics are raised, TAP doesn't appear to give the specific data which is needed by the researchers. In order to fit the particular research, the researchers use other variant of verbal report data such as Dialogue Protocol or combine TAP with other methods[23]. Some of them combine TAP with methods of observation of behaviour (see Figure 2.). Others

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3[3] The combination of those methods is called as *triangulation* (see Alves, 2003: vii)

may combine TAP with the verbal report data taken after the process of translation such as questionnaires and interviews. The use of those methods depends on the researchers' intention in doing their research. For instance, Dimitrova uses TAP and keystroke-logging to analyze the expertise and explicitation among the professional translators (2005) while Schmidth uses them to conduct the longitudinal study of three translator students (2005). Hansen (in Alves, 2003: 26) uses TAPs Keystroke-logging, and retrospection to analyze the controlling process of the translators. The highlight of each method is described below.

2.5.1.2.1. Offline Method

Verbal Report Data (Retrospective Data)

The offline verbal report data is the data taken after the process of translating the text. It is also called as retrospection data. In the study of translation process, this protocol requires the participant to comment respectively on the problems encountered and the translation strategies used during the process of translation (Dam-Jensen and Heine, 2009: 4). Kinds of retrospection data that are usually used by the researchers are questionnaires and interview. In questionnaire, researchers give the questions related to the specific issues of the translation process done by the participant. In interview, researchers can gain participant's comments on translation strategies which might not be mentioned in his/her think aloud process. These data are very useful for the researcher since they give more detail data to support TAP they have taken. However, retrospection

data should not taken long after the process of translation, e.g. moths or a year, after the process of translation since the participant may forget the process.

2.5.1.2.2. Online Methods

2.5.1.2.2.1. Verbal Report Data (Introspective Data)

Online verbal report data is the data taken during the process of translation. As the participant translates the text, they have to verbalize what's on his/her mind and to comment on the particular unit of translation. If the participant is asked to verbalize his/her thought alone (monologue), it is called think aloud protocol (see explanation of TAP on the subchapter 2.3 and 2.4.). If the participant is asked to verbalize his/her thought in pairs, then it is called as dialogue protocol.

Dialogue protocols were introduced in the late 1980s by House in her research *Talking to Oneself or Thinking with Others? On Using Different Thinking-aloud* (1988). In her research, she compared TAPs and dialogue protocols. Unlike TAPs, this method allows two or more subjects to verbalize the translation task in pairs. During the verbalization process, they have to justify the suggestions they make and to criticize the suggestions made by they partners. House reports that the situations during eliciting the dialogues protocols are less artificial and therefore less embarrassing for the participants who are inexperienced or more introverted (House in Göpferich and Jääskeläinen, 2009: 171). Krings adds that verbalizations resulting from work in pairs is more spontaneous and natural compared to an individual report (monologue verbal report or TAP), as dialogue naturally forms an inherent part of this type of work

(Krings 2005: 352). On the other hand, Krings et al. (2001: 97) makes the important point that dialogue translation does not provide a higher degree of validity, as team work does not form a common part of the translator's work praxis.

2.5.1.2.2.2. Observation of Behaviour

Observation of behaviour helps the researcher to know participant's behaviour, action, and expressions—e.g. the activity of using the dictionaries, nerves, and doubt expression— during the process of translation. Kinds of the observation are video recording, screen recording, eye-racking, and key-stroke logging.

Video recording allows researchers to observe participant's writing activities and others such as facial expression. The position of the camera determines the different kinds of data. If the position is in front of the test person, it may show the facial expression of the participant her/himself and writing action. This method has been used in different studies of writing. Such an example is a study by Jakobs, Lehnen and Schindler (2005) of writers' social environment of work-places. This study explores the external factors which may influence the writing process (Dam-Jensen, Heine, 2009: 7). In the study of translation process, this method has been used by several researchers such as Dimitrova (2005). The advantage of this method is that it can provide insightful results by showing what is actually going on during the writing session so that this behavioural report can

support the verbal report. The disadvantage one is that it can also distract the participant observed since the presence of the camera and the observers interferes the process of verbalization.

Screen recording or screen capture registers all activities (e.g. writing) on the computer as a digital video. According to Geisler and Slattery, screen capture is a tool which enables the researcher to study the digital writing analysis Geiser and Slattery in Dam-Jansen and Heine, 2009: 9). The advantage of this method is that it doesn't interfere with the writing process and therefore does not distort data. The disadvantage one is that, according to Göpferich, screen recording or screen capture shows only which internet sites have been consulted but doesn't indicate the part or the exact chunks of texts or pictures on which the participant focuses.

Eye-tracking is a method for examining the subject's eye movement which is useful to obtain her/his visual attention. By studying the visual attention, the researcher can get the knowledge of subject's centre attention in the writing process. The advantage of this method is that it allows the researcher to study the relation between cognitive effort and eye movement. Its disadvantage is that eye-tracking generates a huge amount of data, the handling of which is time consuming (O'Brien in Dam-Jansen and Heine, 2009: 7). One of the researchers on the study of translation process who uses this method is Heine. In 2008, Heine uses eye-tracking in combination with thinking-aloud protocols and keystroke-logging to analyze processes of production hypertext.

Keystroke logging was introduced in the late 1990s as an observational tool for recording writing and translation activities. The software to record the writing (keyboard and mouse) activities during translation process is called *Translog*. By logging all keystroke actions, such as scrolling, deleting, cursor navigation and deleting, process data are recorded. This recording can give information about, for example, rhythm and speed of translation and text production, as a reflection of the cognitive processes underlying text production (Jakobsen 2006: 96). By recording pauses, it is possible to study the time spent by the subjects in translating some linguistic units. This study leads the researcher to analyze the difference of time spending by one subject to another. Some researchers use this method in combination with TAPs. Such researchers are Dimitrova (2005) and Schmidth (2005).

2.5. Theoretical Framework

This study is a study on translation process. This study is closely related to the problem solving in translating the text. The theories used in this study are TAP proposed by Ericsson and Simon, problem indicators proposed by Krings, and local strategies proposed by Chesterman.

TAP is a method of data collection used to gather participants' recorded verbalization during the translation process. In this study, collecting participants' verbalization by using this method is the first step to do. The recorded verbalization then analyzed to investigate the problems participants

encountered during the translation process, the local strategies they use, and how those strategies help them in overcoming problems.

In identifying and categorizing the problems, the problem indicators proposed by Krings are used. Problem indicators consist of primary and secondary problem indicators (see 2.2. Translation Problems in Translation Process). Meanwhile, in identifying and categorizing the local strategies used by the participants, kinds of local strategies proposed by Chesterman are used. Local strategies deal with how various translation problems (at specific level) should be handled. Local strategies consist of literal translation, loan translation, transposition, unit shift, phrase structure change, clause structure change, sentence structure change, cohesion change, synonymy, antonymy, hyponymy, distribution change, paraphrase, cultural filtering, and information change (Chesterman, 1997: 94). After translation problems and local strategies are identified and categorized, the result can be used to reveal whether the problems encountered are solved or not.