Cognitive Behaviors in Indonesia-English Translation: Exploring Translation Processes

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ABSTRAK

Perkembangan kognitif yang muncul di Eropa pada abad ke-18 berkaitan dengan sifat pengetahuan dan dengan struktur dan proses yang diperolehnya. Penelitian ini merupakan penelitian kualitatif yang mengkaji perilaku kognitif penerjemahan dalam teks bahasa Indonesia – Inggris yang mengeksplorasi proses penerjemahan teks bahasa Indonesia. Penelitian ini menggunakan analisis deskriptif untuk menginterpretasikan data. Sumber data dari penelitian adalah rekaman video atau data transkripsi antara mahasiswi dan dosennya dalam mendapatkan arti kata dalam terjemahan yang baik dengan menggunakan banyak strategi dalam mencari arti yang tepat. Perilaku kognitif menunjukkan semua proses mental yang digunakan orang sehari-hari seperti memori, pembelajaran, pemecahan masalah, evaluasi, dan pengambilan keputusan. Kegiatan-kegiatan ini dapat membantu penerjemah untuk menghasilkan ide-ide dalam mengidentifikasi kata-kata sulit dari teks sumber ke bahasa target.

Kata-kata kunci: Kognitif, perilaku kognitif, terjemahan

ABSTRACT

Cognitive development which emerged in Europe in 18century was concerned with the nature of knowledge and with structures and processes by which it was acquired. The research is a qualitative study that investigates translation cognitive behavior in Indonesian – English text which explored the translation process of Indonesian text. This research used descriptive analysis to interpret the data. The data source is recording video or transcription data that run between a female student and her professor in getting meaning of the word in good translation using many strategies in finding appropriate meaning. Cognitive behaviors show all mental processes which people use on daily basis such as memory, learning, problem-solving, evaluation, and decision making, these activities can help the translator to generate ideas in identifying difficult words from the source text to target language.

Keywords: Cognitive, cognitive behaviors, translation.

BACKGROUND

Translation is considered as an activity to transfer meaning from the source language to target language with different techniques, it is similar to the statement derived from Munday (2008:5) that the process of translation between two different languages involves changes from a text of the source text (SL) to Target language (TL) in both written and verbal. (Triastika, 2017.p.77) In doing translation, the translator is obligated to know the words that will exchange, grammatical sides, textual context, cohesion, and pragmatism of the text. Then the translator enables to produce a good translation and the equivalences of language.

To get a good translation, the translator used several techniques such as guessing meaning from the text, ticking from the dictionary, analyzing and interpreting the context, etc. these strategies can raise students' cognitive behavior in translation. Furthermore, the translation process of translation products in the translators' brain is essentially a psychological cognition of process which plays an important role in creating good translation products.

Nowadays, modern technology helps the translator to create good translation and the translator cannot separate the computer function to translate, such as Computer-assisted Translation (CAT) tools, translation memory software, electronic dictionary, and the internet. To support this, James Holmes (2000) calls this case an area of translation psychology or psycho-translation studies which resides the boundaries of the translation process. (p. 205). These processes improve the cognitive behavior of the translator in deciding to mean based on the context of language. In addition, to show the cognitive behavior of translators, they can use some strategies that show the cognitive theirs, such as; identifying difficult words, guessing meaning, clarifying words, making a summary of the definition, and deciding the good translation.

Finally, this writing is aimed to describe a translator's cognitive behavior aspects based on the video recorded during the translation process using Translog transcription data and to find out what cognitive strategy that dominantly used by the researcher in finding the good translation from the text.

Over the past 15 years, the field of translation has become a considerable issue in the area of cognitive translation processes, many studies that investigate cognitive behavior in the translation process, firstly, In the late 1980s, there was a growing interest in the knowledge of the mental process of the translator with the study by Dechert and Sandrock in 1986, the empirical investigation of translation process began. It was the earliest study on cognitive behavior in translation to collect and analyze data in introspective verbal protocols.(Ferreira, 2018). And to support that finding, Ferreira and Alegre (2018) pointed out that cognitive science applied to translation which occupies an important place in traductology. This cognitive helps to describe the translation process and the stages involved. it can be used to understand phenomena such as perceiving, thinking, remembering, and solving problems, (P. 1). In addition, Nefedova & Remkhe (2014) pointed out that cognitive strategies used by translators are seen as operative tools chosen according to the in-built context frame structure of the text. And it is considered as mental knowledge structure that captures the typical features of the situation that are applied in the cognitive translation process with relation to the context and text. (p.245).

Furthermore, Hatzidaki & Pothos (2008) argued in their study that flexible use of conceptual and lexical connections that fluent bilingual engages, depending upon

the cognitive processes required by the hand. And this case has been done for word translation by the revised hierarchical model (RHM) of Kroll and Stewart. (p.125). Moreover, Cer, E (2019) studied the instruction of writing strategies; the effect of the Metacognitive strategy on the writing skills of pupils in Secondary Education which investigates knowledge of cognition and regulation of cognition as a metacognitive process in writing skills. (p. 1)

To support the research above, Larenas C, Leiva & Navarette M (2017) studied rhetoric, metacognitive, and cognitive strategies in pre-service teachers use before and after a process-based writing intervention when completing an argumentative essay which influences not only the number of strategies used but also the number of students who use that strategy. (p.87).

A. Language processing

Language is defined as knowledge of rules, principles, the ways of saying and doing things with sound, words, and sentences rather than just knowledge or a specific sound, words, and sentence. (Wardhaugh 2002). For Chomsky, language is meaning with sound. Linguistically, it is the semantic representation of "thought" switched into "concept, intentions, and contexts". Technically, it is characterized by an infinite discrete set of structured expressions generated by language faculty. Moreover, language faculty does two things: being connected to the thought systems and sensor motors on one hand and generating structured expressions on the other. (He, 2019).

Based on the description above, language processing refers to the generation of an utterance from the intention to communicate a message to its acoustic realization, or from the perception of the acoustic signal to the extract of a message (comprehension). The message itself in the conceptual domain, hence not linguistic, it is alternately the output and input of the linguistic system. (Paradis, 2004., p. 240)

B. Cognitive Behavior on translation

Cognition refers to a range of mental processes that relate to the acquisition, storage, manipulation, and retrieval of information. In addition, cognition is defined as the mental action or process of acquiring knowledge and understanding through thought, experiences, and the senses. And it is also considered as the ability to perceive and react process, understand, store and get the information, make the decision, and produce appropriate responses that are used to guide your behavior. (Cambridge,2015)

Cognitive development which emerged in Europe in 18century was concerned with the nature of knowledge and with structures and processes by which it was acquired. In particular, the cognitive can be distinguished from metacognitive where metacognitive is the strategies that translators use to control the translation process consciously and cognitive strategies are those to implement actual writing action. (Congjun, 2005)

In addition, there was also metacognitive which deals with the way of thinking, it is in line with Roeschl-Heils (1999) which is quoted by Cer (2019) pointed out that the metacognitive strategy developed based on cognitive knowledge and skills creates an awareness of learning as a prerequisite for planning, monitoring, controlling, evaluating and self-regulating the learning process. (P. 26). Based on the definition, the metacognitive strategy has two sides, they are Knowledge of cognition and regulation of cognition. Knowledge- cognition acquire declarative knowledge, task knowledge, procedural knowledge, and conditional knowledge. While regulation of

cognition contributes to writing practice which includes drafting, evaluating, and revising. (Cer, 2019).

C. Cognitive Strategies in Translation

Cognitive strategies refer to organizing information, reading out loud, analyzing, and summarizing, and can also use the dictionary to seek up the meaning or definition. (Larenas, Leiva, & Navarette, 2017). In addition, cognitive strategies are mental strategies the learner uses to make sense of learning that includes practicing, receiving, and sending messages, reasoning, analyzing, note-taking, summarizing, synthesizing, outlining, reorganizing information to develop stronger schemas (knowledge structure), practicing in naturalistic settings, and practicing structures and sounds formal. (Najiib, 2012)

Moreover, Razi (1997) find out differences between cognitive strategies, metacognitive strategies, and social strategies as follow:

1. Cognitive strategies deal with interacting materials to be used in writing by manipulating them mentally or physically, starting from note-taking, elaboration, use of mother tongue, knowledge and skill transfer from L1, interference, drafting revising, and editing.
2. Metacognitive strategies refer to executive processes used to plan, monitor, and evaluate a writing task (assigning goals, planning – making & changing outlines). Rationalizing, appropriate format, monitoring, and evaluation. These metacognitive strategies are essential for learners to plan, monitor, and evaluate learning.
3. Social strategies deal with interaction with another person to assist in performing the task (appealing for clarification, getting feedback, searching, using libraries, and using guidelines from others' writing as a model. (P. 115)

There are cognitive strategies in the translation process:

1. Planning, the plan of identifying theme or words that covers global planning, detailed planning, local planning, organizing, and conclusion planning
2. Retrieving is getting information from memory which includes retrieving constructed plans and retrieving appropriate information from long-term memory.
3. Generating ideas (translation): Repeating, lead-in, inferencing, verbalizing, and rhetorical refining words.
4. Translating: the process of translating from the generated idea into the target language.
5. Revising: Making changes in plan and it is in written text
6. Elaborating: Extending the meaning in Target Language
7. Rehearsing: Trying out ideas or language (options of equivalence in Target language)
8. Referencing or Resourcing: Using online or print dictionaries
9. Evaluating: the process of text evaluation that consists of language proficiency evaluation, local text evaluation, and general text evaluation.
10. Summarizing: synthesizing what has been read. (Sasaki, 2020)

D. Translation Process

The translation process from the original text to the translated text is like the black box of the aircraft. In translation research, different methods have been applied to analyze the working model of a black box to improve the quality of translation products. The process of psychological cognition is the information analysis and processing of the human brain based on self-cognition. (Wei,2020). In this term, Bell's translation process model gives new perspectives on how psychological cognition relates to the translation process.

Nowadays, there are many strategies that can assist the translator to translate the text, one strategy is a computational model of human translation which develops the TAP model, bringing technological innovation model of translation. Besides that, the development of technology adds various methods that can be used in research in translation, such as Translog and eye-tracking, Translog is a software program developed by Jacobsen in 2003 and it was improved in 2012 at Copenhagen Business school. it is used as editorial practice with consists of two versions. Translog user and Translog supervisor. (Jacobsen, 2011).

In addition, There are many observational methods that use to observe the cognitive translation process, namely: (Lauffer, P: 61-64)

1. Think-aloud protocols.
   A great number of studies on the cognitive process in translation use Think-Aloud Protocols (TAP) to extract information about the underlying metal processes requite to complete a given task. Since thought processes are not directly observable, researchers use TAP as an indication of what might be going on in the black box.
   Doing this model, the translator did various strategies, first; clarification, by doing self-question, hypothesizing, defining terms, and comparing. Second; retrieval. This model was done by rereading aloud or silently what has been written, writing in a lead word expression, rereading the assigned question, thinking, etc. finally. Resourcing, it can be done by referring to the dictionary, deferral, avoidance, and verification.
2. Direct observation with a video camera
   Direct observation is conducted in two ways, firstly, the researcher is present to take notes and observe the overall process, second, the event is recorded with a video camera so it can be analyzed in closer detail. Before computer programs such as Translog, cameras were used to record computer, mouse, and keyboard activity which were later transcribed into a detailed log.
3. Computer observation – Translog and Camtasia
   Translog is a relatively recent method of translation, it is developed to obtain quantitative reinforcement of assumptions about translation. It is deal with gathering data such as the number of keystrokes, total numbers of characters, ratios, time delays, number of an electronic dictionary, etc. Camtasia is a software program that can be set to record the entire computer screen.

4. Retrospective Interview
    This interview is conducted in two parts. The first consisted of a prepared question that examined how the translator felt about the translation and the observation process. During the second part of the interview, the translators were asked to comment on their translation with Camtasia playback. And it was done to trigger information that was not verbalized during the think-loud process. (Lauffer, 2018)

RESEARCH METHODS

The research is a qualitative study that investigates translation cognitive behavior in Indonesian – English text which explored the translation process of Indonesian text. This research used descriptive analysis to interpret the data. In this study, the researcher used library research to get the theoretical literature that relates to the topic and it will deal with the cognitive translation process which is analyzed descriptively based on the cognitive behavior of the translator. The data source is recording video or transcription data that run between a female student and her professor in getting meaning of the word in good translation using many strategies in finding appropriate meaning. The tool was used to record the translator's translation process data. The program enables the researcher to replay the whole process of target text production which shows the cognitive behaviors of the translator.

To collect data, the researcher plays video recording as an instrument to get data about how to find out the appropriate meaning for the context, in this stage, the researcher plays the video and analyzes the data based on the cognitive behaviors of Indonesian-English text which explore translation process. Besides that, the researcher also identifies the cognitive strategy that includes comprehending, transferring, and restructuring. After doing data collection, the researcher used a recording video to be analyzed and gained data, this video includes data from respondents to show the cognitive behavior of Indonesian – English text which explores the translation process. In this stage, the researcher tried to interpret data from the source in the descriptive method. The collected data will be analyzed randomly based on general characteristics of behavior cognitive that represent the data.

DISCUSSION

Based on the theoretical framework and purpose of the study above, the researcher tends to analyze the translator's cognitive aspect (behaviors) which include comprehending, transferring, and restructuring. These behaviors will be interpreted in descriptive analysis. In this stage, the researcher analyzed both translators' cognitive behaviors and cognitive strategies in finding out the equivalences of the source text to the target language. After doing research for around one week. Paying attention to the video that played through Translog, The researcher got the result as follows:

Table 1: Cognitive behaviors (video data of comprehending)

Events (Comprehending)	Activities	Cognitive Behaviors	Cognitive Strategies
Comprehending (00:00:24-00:00:39)	Identifying difficult word " Panorama"	Evaluating	Resourcing
(00:02:15-00:03:10)	Reading before typing the difficult word "ubi"	Planning	Evaluating
(00:06:00-00:07:59)	Referencing for the unfamiliar word "Menggembala"	Rehearsing	Clarification
(00:10:51-00:11:54)	Skimming the SL "Rumah panggung	Searching idea	Generated idea
(00:13:41-00:14:58)	Identifying difficult word "Mengurbankan"	Summarizing	Revising
(00:16:53-00:17:56)	Pausing "Kain tenun"	Elaborating	Clarification
(00:19:52-00:20:52)	Identifying and reading the word "serai"	Evaluating	Resourcing
(00:32:17-00:33:18)	Going straight ahead with TLT "Landak laut"	Rehearsing	Clarification
(00:35:47-00:36:16)	Thinking through the room	Summarizing	Searching for ideas

From the data above, the researcher saw that the translator did the strategy in comprehending the words from the source language into the target language, in this case, the translator seems that she has not the confidence in deciding the TL. There are eight difficult words that the translator should browse the meaning with a different strategy in gaining it, the activities that the translator did is identifying difficult words, reading the words, bubbling, pausing, identifying unfamiliar words, and skimming. And the strategies that were used by the translator are resourcing from an online dictionary, revising, clarification, and evaluating. To do comprehending, the translator used cognitive behavior, such as summarizing, evaluating, rehearsing, generating ideas, finding the equivalence words, and planning.

Table 2: Cognitive behavior on transferring (video data)

Events Transferring	Activities	Cognitive Behaviors	Cognitive Strategies
Transferring (00:00:40-00:00:45)	Selecting the meaning of panorama as view	Finding out accurate word	Planning
(00:03:11-00:04:46)	Identifying lexical items of Ubi as the edible tuber	Clarification	Monitoring
(00:08:00-00:09:58)	Cultural context of Menggembala as herding	Referencing	Use the clarity
(00:11:55-00:12:57)	Selecting the meaning of Rumah panggung as stage house	Summarizing	Generated idea
(00:14:59-00:15:43)	Summarizing the meaning of Mengurbankan as sacrifice	Elaborating	Summarizing
(00:17:57-00:18:49)	Selecting the meaning of Kain tenun as woven plainted	Clarification	Description
(00:19:52-00:20:52)	Selecting the meaning of Serai as galangal	Clarification	Clarifying
(00:33:19-00:34:36)	Grammatical Structure of the word " flavor"	Referencing	Revising
00:29:55-00:30:55	Reading words aloud	Elaborating	Clarification
(00:30:56-00:31:40)	Use naturalness	Clarification	Monitoring
(00:36:17-00:37:24)	Accuracy	Planning	Planning

From the data description above, the researcher saw that the translator did cognitive behavior in transferring activity, which include selecting the meaning of the word and identifying cultural context.

In addition, doing transferring activity the translator shows cognitive behaviors that consist of finding accurate words, adjustment, clarification, elaborating, and referencing from the internet browser based on the words, besides that, the strategy that used by the researcher are using naturalness, clarity, and description in finding the meaning of the words.

Table 3: cognitive behavior on restructuring (data from video)

Events Restructuring	Activities	Cognitive / Metacognitive Behaviors	Cognitive / Metacognitive Strategies
(00:00:46-00:00:56)	Retyping the word "panorama"	Pronounce the words and use clarity	Use naturalness that relates to original meaning
(00:04:47-00:05:59)	Reading the word "Ubi"	Revising	Retrieval
(00:09:59-00:10:50)	Retyping the word "Menggembala"	Resourcing	Searching for ideas
(00:15:44-00:16:52)	Reading the word "Rumah Panggung"	Summarizing	elaborating
(00:18:50-00:19:51)	Retyping the word "Mengurbankan"	revising	Use clarity that relate to original meaning
(00:21:08-00:22:08)	Retyping the word "Kain tenun"	Retrieval	Clarification
(00:21:08-00:22:08)	Reading the word "Serai"	Controlling	Revising
(00:34:37-00:35:46)	Selecting Grammatical Items to find clarity	Resourcing	Clarification
(00:31:41-00:32:16)	Selecting Grammatical Items to get Accuracy	Retrieval	Searching for ideas
(00:37:25-00:38:22)	Selecting Grammatical Items to find Naturalness	Controlling	Clarification

From the data above, the translator restructured the words which include retyping the word, reading by bubbling, drafting the word, selecting lexical items, and selecting grammar items. In addition, the researcher also did cognitive behavior which consists of controlling, revising, retrieval, and resourcing, it also can be seen from the strategies that were used by the translator to select appropriate meaning that include clarification, searching for ideas of the word, monitoring, and evaluating, revising, summarizing and referencing.

Moreover, the researcher found how the translator shows the metacognitive in the part of generating an idea to find the appropriate meaning from the source text, the result is shown as follow:

Table 5: Generating an idea

Minutes	Words' Transcript
09.18	Mesti liat 'rumah panggung'…'rumah aja deh' (typing 'rumah' and clicking 'next' many times)
09.44	(inaudible) … (Continue clicking 'next' many times)
09.58	Rumah pake …(iinaudible) aja ke bawah … (clicking 'next' until she found the word '
10.12	Ini dia … (inaudible) new entry 'rumah' … (clicking "CIEB)
10.25	Rumah sakit… rumah putih…rumah…panggung… house built on stilts …
10.36	(clicking BT) tadi …house …built on stilts …house built on stilts

From the data above, the translator generates the idea before identifying the difficult word, in this case, the translator tried to clarify the word "rumah panggung" with the definition and similar words. In generating an idea, the translator asks herself to emphasize the right meaning and make sure of the words taken. She said, "ini dia" this sentence shows the emphasis of generating ideas in the words.

1. Cognitive behaviors in translation

From the findings above, the researcher interpreted that translators' cognitive behavior happened in finding the equivalence word from the difficult words of the source text. In this case, the cognitive behavior shows the way how the translator comprehends the words beginning from the word "panorama", "ubi", "menggembala", "mengorbankan", 'rumah panggung', etc. in this part, the translator shows cognitive behaviors by planning, evaluating, rehearsing, and summarizing the words. While in the cognitive strategies, the translator makes resourcing from any source, such as an online dictionary, and google translate, besides that, the translator also makes revising, clarification, evaluating the words. (see table:1)

The second part of cognitive behavior is the transferring process, where the translator selected the appropriate meaning of the source text, that is suitable with the cultural context and grammatical feature, in the side of cognitive behaviors, the translator finds out an accurate word, create meaning and make reference. To do this, the cognitive strategy that the translator did is using descriptive, naturalness, accuracy that relate to the original meaning and revising. (see table: 2)

The last part of cognitive behavior that the researcher analyzed is about Restructuring, restructuring is done to find out the appropriate meaning by retyping the word of the Source text, reading and selecting the grammatical features of the word, for cognitive behaviors of the translator, the researcher found that translator pronounces the word, bubbling and resourcing with the accurate words, and the strategy that translator did is mostly using clarification, the accuracy of the words and use clarity that accordance with the culture and context. (see table: 3)

Finally, the researcher found that the translator behavior in metacognitive which included generated ideas for some words to emphasize in getting the equivalence words is shown in minute 10.12. that the researcher did generate ideas in identifying the word " Rumah panggung" by giving synonyms and also generating ideas with others word "rumah. (see table:4)

2. Dominant cognitive behavior

Based on the findings above, the researcher saw that the translator used many strategies to find out the appropriate words, and it shows the cognitive behaviors and cognitive strategy of the translator that includes comprehending, transferring, and restructuring. Those behaviors are used randomly to get the data, such as, resourcing from the source, evaluating, and summarizing.

From those strategies, the translator has done many summarizing and resourcing, and it indicates that cognitive behaviors of the translator are dominantly on processing or transferring the word, where the translator resourcing and referencing from the dictionary or internet browser to make equivalence in words. Besides that, the researcher also must summarize and clarification for each word to make it equivalence with the context. (see table:2)

The strategies that the researcher did is based on the cognitive behaviors and metacognitive of the translator in gaining meaning, it is similar to the words proposed by Diaz Rodriguez (2014) and quoted by Larenas, Leive, and Navarette (2017) that cognitive and metacognitive strategies actually are working together. (P. 90). But it is found the difference between both strategies is that the former is used to support development in learning and the latter to monitor and control learning. (Larenas, 2017). In fact, cognitive and metacognitive strategies are not independent of one another. They work together and tie together to get good results from translation.

CONCLUSION

Cognitive behaviors show all mental processes which people use on daily basis such as memory, learning, problem-solving, evaluation, and decision making, these activities can help the translator to generate ideas in identifying difficult words from the source text to target language. While metacognitive is used to complete and emphasize the given task through planning, monitoring, evaluating, and comprehending.

From the description above, the researcher concluded that cognitive behavior in this video happened when the translator finds a difficult word, and it needs strategies to find equivalent words from the Source language (Indonesia) to the Target language (English). There are many strategies that can apply to translate the words or texts, showing cognitive behaviors in translating the words. Such as Comprehending text, transferring, and restructuring.

Besides behavior cognitive, the researcher also found a metacognitive process that covers generated ideas in emphasizing meaning by asking themselves and bubbling. These behaviors show the metacognitive of the translator in summarizing and clarifying words.

To sum up, the researcher found that cognitive behavior in translating Indonesian – English text appear the strategies that can be done by the translators in finding meaning, in this case, the researcher found that the translators are equal in comprehending and restructuring process, while for the transferring process, the researcher saw that the translator analyze the words more and summarize it with own words by guessing, resourcing and referencing from the source such as online dictionary and another browser. Finally, the cognitive behaviors and metacognitive actually are working together and these behaviors cannot be separated in finding the words or meaning process from the text.

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