

Accuracy in Translations by Visually-Impaired Students and Its Implications for Competence and Improvement Aspects

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Abstract—Translation is a career that can also offer benefits to the visually impaired. Visually impaired translators face the normal technical and non-technical challenges of translation - common for all translators. This means that the quality of the visually impaired translation is not an easy task, as certain categories can be compromised by accuracy. Case studies, which researched the accuracy of translations of two visually impaired students, who majored in translation studies, emphasized a need to improve their competence in translation. The analysis of two categories of translation tasks, from these case studies revealed two conclusions. Firstly, the two visually impaired students were able to accurately translate all non-academic texts. Secondly, however, when translating academic texts, the two students faced difficulties with the quality, as measured by the inaccuracies in these translations. The conclusions from these case studies are there are implications of needing to develop, and improve, the competence of translations by visually impaired students. Translation education must be able to maximize the competence and ability of visually impaired students based on their special characteristic.

Index Terms—accuracy, competence, translation students, pedagogy, visual impairment

I. INTRODUCTION

The existence of visually impaired people who work as translators has been recognized in Indonesia. The emergence of blind translators is plausible, because the researchers consider this profession is in accordance with the characteristics of their disability. Nugroho et al. (2016) state that blind translators have physical limitations that do not allow them to move freely. This type of work also does not require translators to move dynamically, because they can sit in front of their working tools, such as computers, to complete their work. Thus, the potential for visually impaired persons to improve their translation competence can be increased by undertaking specialized translation education in order to support translations of formal and non-formal text.

The researchers consider the improvement of translation competence for the blind as an important matter because translation competence is the indicator of being a professional translator (Kuznik & Albir, 2015; Rothe-neves, 2007; Zou, 2015). This professionalism is reflected in the existence of five categories of translation sub-competence and one supporting component as the parameter of translator's quality. These categories include: bilingual, extra-linguistic, instrumental, knowledge about translation, strategic, with the one supporting component being psycho-physiological, in nature (PACTE, 2003).

As a professional translator, the ability to master two languages is the main requirement. This ability is characterized by the mastery of linguistic rules in one's mother tongue and a second language. The mastery of these two languages is absolutely critical because a translator must carry out direct translation or inverse translation activities (Mraček, 2018). This ability is known as the bilingual sub-competence. However, mastering two languages is not enough for a translator, as he or she must also master the cultural context, general knowledge, and special knowledge so that he or she can carry out the translation process well and avoid mistranslation by activating his or her declarative knowledge (Ghaemi, 2020; Mahmoodzadeh et al., 2019; Piecychna, 2013). This mastery is included in the extra-linguistic sub-competence.

Apart from improving the cognitive sub-competence, to produce good translations in today's digital era, translators can also improve their ability by mastering various translation support technologies, such as CAT tools, corpora, parallel texts, and machine translation. Various studies, such as by Vine (2015), Jiménez (2013), Vela et al. (2019), and Alotaibi (2020), have proven that the use of translation support technology can improve the quality of translation and make the translation process more effective. Therefore, the instrumental sub-competence must be comprehensively

mastered by the translator as an indication of their professionalism. However, this instrumental sub-competence cannot be maximized without knowledge of translation, both theoretical and practical (Ardi, 2014; Esfandiari et al., 2015).

The theoretical knowledge is obtained from academic experience, for example from lecture sessions or from self-study, while practical knowledge can be obtained from the experience when someone performs translation activity. These two types of knowledge can form a declarative knowledge (know-what), a cognitive ability about translation that is obtained through training or professional activities (Wilss, 1997). When translators have gained this knowledge, they will be able to describe what is needed to achieve a good translation process. Firstly, a translator knows what translation technology can be used to improve translation performance or secondly, a translator has the capability to choose the best equivalence to translate certain source language expressions.

To activate the declarative knowledge, translators need a strategic sub-competence. According to PACTE (2003), the strategic sub-competence can be identified as the way translators improve the efficiency of the translation process, use good time management, and utilize appropriate mechanisms to overcome translation problems. From that explanation, PACTE (2003) and Cheng (2017) agree that this sub-competence is the most “essential component” in the translation competence model. Eser (2014) highlights that this sub-competence is tasked with activating the translator's ability to plan translation activities from the beginning to end, evaluating the translation process and translation product, and linking one sub-competency to another. Because of the importance of this sub-competence, PACTE is not the only one that includes it, as Göpferich and Jäskeläinen (2009) also conclude that this sub-competence, which they refer to as TransComp, has a key position in the translation model.

The last component that supports all sub-competence categories for professional translators is psycho-physiological component. This ability is in the form of cognitive, behavioral, and psychomotor abilities. Some things that reflect cognitive abilities are memory, attention, and emotions. Furthermore, behavioral abilities can be seen from several attitudes, such as curiosity, thoroughness, a critical attitude, and self-confidence. Finally, psychomotor abilities are proven from the translator's ability to carry out activities by involving certain members of the body. Although this component is a supporting component, its function cannot be excluded, referring to Yang and Tang's (2018) conclusion that this ability is labeled as a “complex mechanism”.

Like the two poles of cause and effect, all these translation sub-competence components contribute to the quality of the translation. Lyu (2020) believes that sub-competence and good translation skills can improve the processing, storage, and creation capabilities of a translator. According to Beeby et al. (2011), there is an acceptability in a translation which is related to several indicators of the competence of a professional translator. Acceptability here is a transverse indicator that assesses the relationship between the translation results produced and several aspects controlled by the translator, such as knowledge about the translation, efficacy of translation process, decision making, translation projects, identification and solutions to translation problems, and use of instruments and resources. Their findings indicate that there is a change from a static approach to a dynamic approach when a person develops their translation competence. This indicates that when translators improve their competence, their translation level increases from “novice” to “expert” knowledge.

The problem that arises when evaluating the translator's competence, through the results of the translation, is to determine the quality of the translation. Translation accuracy is a critical aspect in a translation activity. In certain contexts, translation accuracy can even determine a person's life and death, for example, the accuracy of translation for medical contexts (Anazawa et al., 2012). Abdulhaq (2016) explicitly states that, whether or not a translation is perfect, is closely related to the accuracy of the information from the source language being successfully conveyed in the target language. In the context of this study, the researchers used the translation accuracy parameter from Nababan et al. (2012) which has a value range of 3, 2, 1 to assess whether the translation is accurate or not. The use of the accuracy parameter is based on several factors, for example, the rules for assessing the accuracy of the translation have been examined for their qualitative validity through focus group discussions with translators, students, lecturers, translation experts, translation observers, and related stakeholders. In addition, this parameter also improves the strategies for assessing translations; from Nida and Taber (a cloze technique and a reading aloud technique), Brislin (a knowledge test and a performance test), Reis (an equivalence-based approach), and Machali (a functional approach) by highlighting the roles of the three aspects of translation quality (accuracy, acceptability, and readability) and fully explains the large portion of the translated text that must be assessed (Nababan et al., 2012).

The importance of managing and improving translation accuracy for blind translators is very challenging. Nugroho et al. (2016) conclude that the work from visually impaired translators, which is produced through controlled direct assignments, is quite low in quality. Teaching translation, which aims to improve the final result of translation accuracy to blind students, must be initiated immediately. The researchers, in the initial paragraph, have stated the need for teaching translation is to be able to improve the competence of translators and what a teacher imparts must align to the characteristics of blind translators. Figiel (2006) evaluates this as a “reasonable adjustment” in the context of teaching translation for the blind. This is what needs to be bridged, so as not to cause a gap in learning, because many translation teachers do not understand how to teach their visually impaired students (Başaran, 2012; Hagemann, 2015).

From our description above, the problems with this research can be formulated as follows:

1. What is the level of accuracy of the translation produced by visually impaired students?

2. Are there translations by visually impaired students that need to be improved in terms of the accuracy? If yes, how to improve the translation accuracy of these students?

The above research questions describe that the analysis of the accuracy of translations from blind students, which becomes the basis for how to improve its accuracy, needs to be accompanied by pedagogical implications that aim to improve the translation competence of the blind students. Previous studies about translation and the blinds do not involve the blinds as translators, but only as subjects who benefit from multimodal translation, such as audiovisual translation (Bardini, 2016; Hernández-Bartolomé & Mendiluche-Cabrera, 2004; Mendiluche-Cabrera & Hernández Bartolomé 2005). The only research involving individuals with visual impairment as translators was conducted by Suryaningtas and Cahyono (2018). Their research highlights how visually impaired translators translate news texts from Indonesian to English. As a result, the research subjects were identified as having a different translation procedure. Visually impaired translators use some special software, such as screen reading software. However, their research did not evaluate the quality of the translations made. In addition, there are no recommendations that the visually impaired translators can use to improve their translation competence. Rodríguez Vázquez et al. (2018) actually also discussed the use of translation technology and its benefits for visually impaired translators, but the research only used a questionnaire about the ease of use of MateCat and Memsources software which was sent to respondents, who were blind translators. In this study, the researchers did not find direct verification, through translation or the translation process carried out by a visually impaired translator, as a form of proof of the results of the questionnaire. The results of the questionnaire were only processed quantitatively, without any detailed discussion of what were the advantages and disadvantages of each software. From these previous studies, the researchers believe that this is the gap between this research and the previous studies.

II. METHODOLOGY

A. The Research Approach

The research paradigm used in this study was a qualitative paradigm. This paradigm was used because the data used in this study were qualitative data in the form of language elements and the analysis was expressed in the form of words (Neuman, 2007). Departing from phenomenology (Maykut & Morehouse, 1997), the qualitative approach adopted in this study was the phenomenon of the translation product of visually impaired students which was produced through translation assignments. The approach used for this research was a case study approach with a type of naturalistic inquiry (Given, 2008) whose case only focused on involving visually impaired students and their translation results. The case presented in this study refers to the assignment of visually impaired students to translate the text chosen by the researchers. This translation assignment is in accordance with the method used by Krein-Kuhle (2003) known as an "actual translation assignment". The language pairs selected were English (source language) and Indonesian (target language). Indonesian, which is the mother tongue of the translator, was chosen as the target language because a mother tongue is the most natural language which is possessed by translators in order to express a language (Jancova, 2010).

B. Participants

There were two participants in this study: (1) totally blind students and (2) assessors who evaluated the translation results of the blind students. The first participants, who were visually impaired, were students majoring in English and already took *advanced translation* course. The students had also been tested for the English competency test and already passed CEFR B2 level. There were only two blind students (HBW and DA) who met the CEFR requirements to participate in this study. The two students in this study were assigned the translation tasks, under conditions that were comfortable for them. In the assignment, they were able to use their usual translation aids, during a time limit of two hours per text. The second participants, who were the assessors of the translations, met the criteria of: (1) having the theoretical and practical abilities in the field of translation; (2) having a minimum academic experience of master's degree in translation; and (3) having experience in assessing quality translations for at least 5 years. From these criteria, the researchers chose AYP, SMD, and BBH as the assessors for translation.

C. Data Collection Techniques

To get the targeted data, the researchers used a modification of three data collection techniques of the basic translation processes: firstly, informing and preparing the subjects; secondly, carrying out the translation process through the assignment of translation to visually impaired students; and thirdly, re-verifying information to the translator using computer playback of the assignment (Lauffer, 2002). From the data collection technique, the researchers evaluated the quality of the translation data that was examined. The translation data was segmented per sentence to get the expected translation quality results. To get the consistency of the analysis, the two types of assigned texts (fiction and non-fiction) reached 100 sentences with a composition of 50 sentences for each text.

D. Data Analysis Techniques

The researchers used the data analysis techniques compiled by Spradley (1980) which consisted of domain, taxonomy, and componential analyses. From the domain analysis, the researchers classified the sentence data based on

the translation accuracy, using quality parameters from Nababan et al. (2012) with a rating scale of 1 – 3. The rating scale has the following qualitative parameters:

TABLE 1
TRANSLATION ACCURACY QUALITY RATING SCALE

Scale	Qualitative Parameter
3	The meaning of words, technical terms, phrases, clauses, sentences or source language texts is accurately transferred into the target language; there is no distortion of meaning
2	Most of the meanings of words, technical terms, phrases, clauses, sentences or source language texts have been accurately transferred into the target language. However, there are still meaning distortions or double meaning translations or there are meanings that are omitted, which disrupts the integrity of the message.
1	The meanings of words, technical terms, phrases, clauses, sentences or source language texts are inaccurately transferred into the target language or deleted.

Furthermore, for the taxonomic analysis, an average score of the translation assessments was made. For the componential analysis, the relationship between the quality results of the translation and various factors, such as the difficulty of translation, patterns of translation errors, and pedagogical implications were made in layers of explanations which could show the unity between translation analysis and its pedagogical implications.

III. FINDINGS / RESULTS

From the results of the translation quality conducted by the assessors, the researchers are able to determine the following tabulation.

TABLE 2
THE TRANSLATION ACCURACY ASSESSMENT OF A FICTION TEXT

Translator 1 (HBW)					Translator 2 (DA)				
S	R1	R2	R3	Σ	S	R1	R2	R3	Σ
1	3	3	3	3	1	3	3	3	3
2	3	2	3	2.666666667	2	3	2	3	2.666666667
3	3	3	3	3	3	3	3	3	3
4	3	3	3	3	4	3	3	3	3
5	3	3	3	3	5	3	3	3	3
6	3	3	3	3	6	3	3	3	3
7	3	3	3	3	7	3	3	3	3
8	3	3	2	2.666666667	8	2	3	2	2.333333333
9	3	3	3	3	9	3	3	3	3
10	3	3	2	2.666666667	10	3	3	2	2.666666667
11	3	3	3	3	11	3	3	3	3
12	2	2	3	2.333333333	12	3	2	3	2.666666667
13	3	2	3	2.666666667	13	3	2	3	2.666666667
14	2	2	3	2.333333333	14	3	3	3	3
15	2	3	2	2.333333333	15	3	3	3	3
16	3	3	3	3	16	3	3	3	3
17	3	3	3	3	17	3	3	3	3
18	3	3	3	3	18	3	3	3	3
19	3	3	3	3	19	3	3	3	3
20	2	3	2	2.333333333	20	2	2	2	2
21	3	3	3	3	21	3	3	3	3
22	3	3	3	3	22	3	3	3	3
23	3	2	2	2.333333333	23	3	3	2	2.666666667
24	3	3	3	3	24	3	3	3	3
25	3	3	3	3	25	3	3	3	3
26	3	3	3	3	26	3	3	3	3
27	3	3	3	3	27	3	3	3	3
28	3	3	3	3	28	3	3	3	3
29	3	2	2	2.333333333	29	2	2	2	2
30	2	3	3	2.666666667	30	2	3	3	2.666666667
31	3	3	3	3	31	3	3	3	3
32	3	3	3	3	32	3	3	3	3
33	3	3	3	3	33	3	3	3	3
34	3	3	3	3	34	3	3	3	3
35	3	2	3	2.666666667	35	2	2	3	2.333333333
36	3	2	2	2.333333333	36	3	2	2	2.333333333
37	3	3	3	3	37	3	3	3	3
38	3	3	3	3	38	3	3	3	3
39	3	3	3	3	39	3	3	3	3
40	3	3	2	2.666666667	40	2	3	2	2.333333333
41	3	3	3	3	41	3	3	3	3
42	3	3	3	3	42	3	3	3	3
43	3	3	3	3	43	3	3	3	3
44	3	3	3	3	44	3	3	3	3
45	3	3	3	3	45	3	3	3	3
46	3	3	3	3	46	3	3	3	3
47	3	3	3	3	47	3	3	3	3
48	3	3	3	3	48	2	2	2	2
49	3	2	3	2.666666667	49	3	3	3	3
50	3	3	3	3	50	3	3	3	3
Average				2.853333333	Average				2.846666667

S: Sentence; R: Rater (Assessor)

From the translation of fictional texts from English to Indonesian, it can be inferred that the quality and accuracy for both students is almost in the same position, i.e. 2.85 and 2.84. This indicates that the quality and accuracy of a fiction translation for the two students is almost close to the 'accurate' translation score. In addition, their ability to translate fiction texts is almost the same. From the assessors' conclusions, we identify that there are no inaccurate translations of fictional texts produced by the visually impaired students. The lowest average value that they produce is 2.3. Furthermore, from the average obtained, there is one sentence that makes it difficult for the research subjects, because both of them scored 2.3, it is from sentence 36. The tabulation from Table 2 indicates that almost all sentences of non-fiction text can be translated well by visually impaired students without any significant difficulties.

When comparing the accuracy of translations of fiction text with non-fiction text, the researchers also identify the accuracy of the translation of non-fiction text through the tabulation below.

TABLE 3
TRANSLATION ACCURACY ASSESSMENT OF NON-FICTION TEXT

Translator 1 (HBW)					Translator 2 (DA)				
S	R1	R2	R3	Σ	S	R1	R2	R3	Σ
1	1	1	1	1	1	1	1	1	1
2	1	2	1	1.333333333	2	1	1	1	1
3	1	2	1	1.333333333	3	3	3	3	3
4	3	3	3	3	4	1	2	2	1.666666667
5	2	2	2	2	5	2	2	3	2.333333333
6	1	1	1	1	6	1	1	1	1
7	3	3	3	3	7	3	3	3	3
8	1	1	2	1.333333333	8	1	1	1	1
9	1	1	1	1	9	1	1	2	1.333333333
10	2	2	2	2	10	2	3	2	2.333333333
11	2	3	2	2.333333333	11	3	3	3	3
12	2	2	1	1.666666667	12	3	2	3	2.666666667
13	2	2	3	2.333333333	13	3	2	3	2.666666667
14	2	2	3	2.333333333	14	3	3	3	3
15	2	3	2	2.333333333	15	3	3	3	3
16	1	2	1	1.333333333	16	1	2	2	1.666666667
17	1	1	1	1	17	1	2	1	1.333333333
18	1	2	1	1.333333333	18	3	3	3	3
19	2	2	2	2	19	3	3	3	3
20	2	3	2	2.333333333	20	2	2	2	2
21	3	3	3	3	21	2	2	2	2
22	2	2	2	2	22	1	2	2	1.666666667
23	3	2	2	2.333333333	23	3	2	2	2.333333333
24	3	3	3	3	24	3	3	3	3
25	3	3	3	3	25	2	2	2	2
26	2	2	2	2	26	3	3	3	3
27	2	3	2	2.333333333	27	3	3	3	3
28	2	2	2	2	28	1	1	1	1
29	3	2	2	2.333333333	29	1	2	2	1.666666667
30	2	1	1	1.333333333	30	2	3	2	2.333333333
31	1	1	1	1	31	3	3	3	3
32	3	3	3	3	32	2	2	3	2.333333333
33	3	3	3	3	33	3	3	3	3
34	1	2	1	1.333333333	34	2	2	2	2
35	3	2	3	2.666666667	35	2	2	2	2
36	3	2	2	2.333333333	36	2	1	1	1.333333333
37	3	3	3	3	37	3	3	3	3
38	3	3	3	3	38	2	2	2	2
39	1	1	1	1	39	1	1	1	1
40	3	3	2	2.666666667	40	1	2	2	1.666666667
41	3	3	3	3	41	3	3	3	3
42	3	3	3	3	42	3	3	3	3
43	1	1	1	1	43	1	1	1	1
44	1	1	1	1	44	3	2	2	2.333333333
45	2	2	2	2	45	1	1	1	1
46	2	1	2	1.666666667	46	1	1	1	1
47	1	1	1	1	47	2	1	1	1.333333333
48	1	2	1	1.333333333	48	2	2	2	2
49	2	2	2	2	49	2	2	2	2
50	1	1	2	1.333333333	50	1	1	1	1
Average				1.933333333	Average				2.08

S: Sentence; R: Rater (Assessor)

Compared to the average accuracy of translation of the fiction text in Table 2, the visually impaired students face more difficulty when translating non-fiction text. This can be seen from the average results of the research subjects, which only achieve the score of 1.9 (HBW) and 2.08 (DA). This finding demonstrates that their non-fiction text translation is assessed as an inaccurate translation. In line with the total average value, many non-fiction text sentences are translated inaccurately by the two students, for example sentences 1, 2, 6, 8, 9, 17, 39, 47, and 50. This has implications that a non-fiction text, especially an academic text, is the type of text that becomes difficult for visually impaired students to translate.

IV. DISCUSSION

In this section, the researchers discuss matters related to the level of translation accuracy of visually impaired students, ways to improve the accuracy of their translations, and its pedagogical implications. As stated in the Findings / Results section, the quality of the accuracy of translation of fiction texts (non-academic) made by the students is better than the accuracy of academic translations. Studies on the analysis of translations of academic and non-academic texts have also been discussed by researchers in various studies, either single-text analysis or comparison of two types of

texts (Aixelá, 2004; Gibová, 2012; Salimi, 2014; Đorđević, 2017). Linguistically, the character differences between academic and non-academic texts are very wide, Aixelá (2004) argues that although academic texts have both simple and straightforward language, but the use of vocabulary or terminology plays an important role in this type of text. Although Aixelá adds that only people who have a high command of language and a good level of technical or scientific knowledge are able to understand academic texts, there is not even the same way to translate various academic texts, because there is no single or universal language or so-called “*lingua scientia*” in academic texts (Clas, 2021). On the other hand, non-academic texts, such as fiction texts used in this study, focus more on the power of imagination compared to the suitability of technical terms (Gibová 2012a; Gutfeld, 2017). Furthermore, Gibová (2012b) even emphasizes if the translation of fiction or literary texts is more focused on the message and not too concerned with content issues. This, in our opinion, reflects the research subjects’ primary ability concerning with language and translation, that is being accurate in absorbing fictional text messages and being creative in conveying messages in translation.

Given the advantages and disadvantages of the visually impaired students in the translation practice, the follow-up questions are: What attitude should the stakeholders, e.g. translation teachers, take? What should be prioritized in improving the translation accuracy of the visually impaired ones? When viewed from the results of the translation of fictional (non-academic) texts, there are only a few aspects that need to be improved, especially in terms of language style. Salehi and Haddadi (2017) reveal that a translator of non-academic texts, such as literary texts, fiction, needs to understand two things, the purpose of the text being written and the style of the author’s language. Referring to this, translation teachers must teach the reason a non-academic text is created, such as to entertain, provide covert criticism, provide education, and other aspects. In addition, the teachers must also train the language style of the visually impaired students so that their translations do not read like a translation, but like an original work (Chironova, 2004; Dağgöl, 2018). On the other hand, to produce a translation of an academic text, although according to Aixelá (2004) the language is simple and straightforward, there are so many things that need to be taught to blind students. For example teaching paraphrasing and academic style writing (Kovacs, 2020), formal criteria and terminology (Đorđević, 2017), as well as vocabulary and grammar usage (Hasan et al., 2019). This means that the challenge of making visually impaired students proficient in translating non-academic texts is quite complex and very time consuming.

Thus, at least in Indonesia, the focus of teaching and learning translation for the visually impaired ones at the undergraduate level is to get the opportunity to develop language skills, either native or foreign language competence and to improve their general and special knowledge. We recommend a teaching and learning process that focuses on excellent non-academic text translation skills and an introduction to the basics of translating simple or superficial academic texts. This opinion is also in line with the opinion of several scholars who state that the experience of practicing translations at the undergraduate level is different from the experience when participating in professional translator training. This professional translator training really gives translators the ability to be able to translate all types of texts (Károly, 2011; Li, 2012), or when taking a master’s study that explores the mastery of translating terminological competence, especially in the types of academic, technical, and scientific texts (Liu & Yu, 2019).

The translation teaching and learning process developed for visually impaired students must be based on improving translation competence (Calvo, 2011; Eser, 2014; Acioly-Régner et al., 2015; Gavrilenko, 2016). The translation competence developed here refers to the competence developed by PACTE (2003). They demonstrate categories of bilingual, extralinguistic, instrumental, knowledge about translation, strategic, plus the psycho-physiological competence. In this study, the researchers argue that in order to improve their bilingual sub-competence, visually impaired students need lectures that aim to improve their language skills, especially for academic language operations, for example by increasing Indonesian and English language competencies to C1 level. This is in line with Sharif’s research (2016) that views the importance of improving language competence as indicated through the TOEFL, IELTS or similar tests.

The researchers also argue that the development in linguistic competence must also be accompanied by an improvement in other knowledge, such as cultural knowledge, general knowledge, and special knowledge. Why is increasing knowledge important? For example, the text of a fictional novel is composed of various real backgrounds. The background is in the form of life experiences felt by the author. This background can be influenced by several factors, such as cultural, political, social experiences, and so on. Therefore, there are many novels that are full of storytelling in cultural, social, political, economic settings (Mustakim et al., 2018; Mustofa & Hill, 2018). If the translator does not have this knowledge, the message contained in a text may not be conveyed, so the accuracy of the translation is weakened. Therefore, translation teachers need to teach about the internal and external information of a text (Seresová & Brevenková 2019). From the internal information, a translator can find out the linguistic characteristics of the text, while from the external information, a translator can identify who the readers of the text are and the purpose of making the text.

Furthermore, in the current era of technological advances, visually impaired students who have the desire to become professional translators must also be familiar with various kinds of translation support technologies, such as computer assisted translation tools (CAT Tools), machine translation, electronic translation tools, and software-assisted translation tools as the basis for translation (Ivanova, 2016; Halim, 2019; Abdi, 2020). However, unfortunately, not all translation technologies are accessible to them. The screen reading technology used by the visually impaired to access

text on a computer cannot access all CAT Tools. This finding, at least in Indonesia, is in line with the study of Rodríguez Vázquez et al. (2018) that discovers that the assistive technology used by the visually impaired from Austria, Germany, Italy, Canada, Egypt, Poland, and the UK has difficulty accessing CAT Tools. Therefore, the researchers argue that it is necessary for students to be given special courses in translation which serve to strengthen their knowledge in the field of translation in order to compensate to overcome the technological obstacles. Knowledge about translation and linguistics is very important for blind students to master (Dağgöl, 2018). They can find out ways to overcome translation problems such as using various strategies, methods, procedures, and translation techniques. We consider that by knowing and understanding the theoretical and practical translation knowledge, sensitivity in identifying and overcoming the translation problems of visually impaired students can be established.

The researchers consider the establishment of translation awareness to be crucial, because based on our observations of the translation process of the two research subjects, they are identified as correct, and appropriate translation steps. In many references, generally, the ideal translation process, at a minimum, consists of three stages, namely pre-drafting, drafting, and post-drafting, although the more professional a translator is, the more stages of the process he or she will use (Pradhyta & Nugroho, 2015; Borg, 2018). In the first stage, a translator analyzes or understands the message and form of the source text; in the second stage, the translation results have been compiled; and in the last stage, a translator revises and refines the compiled translation results. From the researchers' observations about the experiment process for the actual translation assignment, the visually impaired students tend not to do the first and third stages. They directly combine text analysis activities with translating texts. In other words, they read the text and then immediately translate. There is no activity to analyze or fully understand the text to be translated. Furthermore, the research subjects also do not improve the translation results; in other words, there is no stage of re-reading the translation they have made and correcting the deficiencies found. This causes many translation errors, especially in the academic text. Therefore, teachers of translation courses must teach and facilitate blind students to always practice applying the three stages of the translation process. The discipline to apply the three stages itself is also closely related to the last translation competence, namely the psycho-physiological component. A translator is expected to have a character that describes professionalism, such as being able to control emotions or always improve his or her cognitive capacity (Yang & Tang, 2018). Thus, attitudes such as patience, perseverance, being able to concentrate on the translation work are characteristics that must also be built into the translation learning process for visually impaired students. If all these things can be built into the teaching and learning activities of translation, the researchers believe that the weaknesses identified during the experiment will get eliminated in the future time.

V. CONCLUSION

Based on the analysis and discussion done in this study, non-academic text translation can be the primary ability of visually impaired students. It does not mean that the translation of academic texts is not a priority for learning, but the researchers understand that the linguistic features or language characteristics of academic texts differ from non-academic texts. Studying academic texts requires a lot of experience and time. Visually impaired students are, of course, introduced to the practice of translating academic texts as part of their learning process, but the main goal of translation education for the blind at the undergraduate level is to equip blind people to become competent in translating non-academic texts. Thus, the main priorities for translation education for the blind can be divided according to the types of translation sub-competence, for example: 1) increasing the accuracy of meaning and diversity of language styles in translation (bilingual sub-competence); 2) improving the general knowledge and culture about the source and target languages (extra-linguistic sub-competencies); 3) increasing the ability to use compatible translation support technology (instrumental sub-competence); 4) increasing the knowledge of professional practice in the world of translation (sub-competence of knowledge about translation); 5) raising an awareness to identify difficulties or translation problems (strategic sub-competencies); and 6) improving attitudes, behavior, and habits that show more professionalism (psycho-physiological component).

This research itself is not without drawbacks. Due to population limitations, the researchers are only able to utilize two students with visual impairment. If the population is larger, coupled with diverse competency backgrounds, the results are more generalizable. However, finding a blind translator or translation student who is willing to be involved in a research is not easy. In addition, the translation assessors used only come from people with an academic translation background, while for a more complete triangulation analysis, the assessors coming from general readers (the public) and specific readers (the readers of academic textbooks, for example) can be involved to find out more natural responses of the translation. Finally, the analysis of translation quality can also be expanded into the analysis of acceptability and readability. Both analyses were not discussed in this study because the essence of a good translation is its accuracy. No matter the quality of the acceptability and readability, if the translation is inaccurate, then the result is unacceptable. However, if there is a combined analysis of the three, there will be a comprehensive and holistic analysis of the translation quality of the visually impaired students.

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