Translating Medical Texts: Procedures Employed by Professional M.A. Translation Students

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Abstract

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Keywords:

Medical Translation, Translation Procedures, Specialized Texts, Translation Strategies

This study investigates the translation procedures employed by professional M.A. Translation students at Yarmouk University in Jordan when translating specialized medical texts from English into Arabic for laypeople. Medical translation poses unique challenges due to the intricate nature of medical terminology and the necessity for cultural sensitivity. Utilizing qualitative methods, the research involved semi-structured interviews with ten experienced students who provided insights into their translation processes. The findings reveal four key themes: (1) Scanning through Medical Texts, where students emphasized the importance of both macro- and micro-text analysis to gain a comprehensive understanding of the source material; (2) Determining Translation Theory, highlighting the application of Skopos theory to guide translation decisions based on the intended audience and purpose; (3) Determining Translation Strategies, which showcased a preference for oblique strategies over literal translation to enhance comprehension and adequacy for lay audiences; and (4) Improving Personal Skills and Self-Interest, underscoring the significance of continuous learning and consultation with medical professionals to refine translation quality. The study contributes to the field of medical translation by proposing a cognitive model that outlines effective procedures for translating medical texts, thereby enhancing the competence of novice translators. The results advocate for the integration of specialized translation training in academic curricula to better prepare students for the complexities of medical translation, ultimately fostering improved communication in healthcare contexts.

ترجمه متون پزشکی: راهبردهای مورد استفاده دانشجویان ارشد رشته مترجمی

این پژوهش راهکارهای ترجمه‌ای را که توسط دانشجویان ارشد مترجمی در دانشگاه یرموک در اردن هنگام ترجمه متون تخصصی پزشکی از انگلیسی به عربی برای افراد غیرمتخصص استفاده می‌شود، بررسی می‌کند. ترجمه پزشکی به دلیل ماهیت پیچیده اصطلاحات پزشکی و ضرورت حساسیت فرهنگی چالش های منحصر به فردی را ایجاد می کند. با استفاده از راهبردهای کیفی، این تحقیق شامل مصاحبه‌های نیمه ساختاریافته با ده دانشجوی با تجربه بود که بینش‌هایی را در مورد فرآیندهای ترجمه خود ارائه کردند. یافته‌ها چهارموضوع کلیدی را نشان داد: (1) اسکن متون پزشکی، که در آن دانشجویان بر اهمیت تجزیه و تحلیل کلان و خرد متن برای به دست آوردن درک جامع از منبع تأکید کردند. (2) تعیین نظریه ترجمه، برجسته کردن کاربرد نظریه Skopos برای هدایت تصمیمات ترجمه بر اساس مخاطبان و هدف مورد نظر . (3) تعیین استراتژی‌های ترجمه، که ترجیح راهبردهای قابل اتکا را بر ترجمه تحت اللفظی برای افزایش درک و کفایت برای مخاطبان عادی نشان می‌دهد. و (4) بهبود مهارت های شخصی و نفع شخصی، تاکید بر اهمیت یادگیری مداوم و مشاوره با متخصصان پزشکی برای اصلاح کیفیت ترجمه. این پژوهش با پیشنهاد یک مدل شناختی که راهکارهای مؤثربرای ترجمه متون پزشکی را مشخص می‌کند، به حوزه ترجمه پزشکی کمک می‌کند و در نتیجه توانایی مترجمان تازه‌کار را افزایش می‌دهد. یافته های این پژوهش ازادغام آموزش ترجمه تخصصی دربرنامه‌های درسی دانشگاهی برای آمادسازی بهتر دانشجویان در فهم پیچیدگی‌های ترجمه پزشکی حمایت می‌کند و درنهایت باعث بهبود ارتباطات در زمینه‌های مراقبت‌های بهداشتی می‌شود.

کلیدواژه ها: ترجمه پزشکی، راهبرد های ترجمه، متون تخصصی، راهکارهای ترجمه

Introduction

Translation of different text types consists of reproducing the SL textual material with TL textual material, considering the linguistic and cultural differences between both languages (Catford, 1965, as cited in Abdi, 2019). One of the most challenging types of translation is medical translation because it requires meticulous and careful rendering across languages (Plested, Quiroz, Muñoz & Giraldo, 2000). To differentiate translation procedures from translation strategies (TSs), Gengshen (2003) suggests that translation strategies are steps chosen by a translator to resolve the encountered translation problems in dealing with the whole text, while translation procedures are ways of performing transference in terms of word and meaning (Ordudari, 2007).

By the same token, Nida (1964, as cited in Ordudari, 2007) introduced "technical" and "organizational" procedures for performing any type of translation. On the one hand, technical procedures include analyzing and reading the ST and the TT pairs before making any attempts to translate them. Afterwards, the translator needs to make conclusions on the semantic and syntactic variations between the two languages. On the other hand, organizational procedures include continuous assessment of the final version, which compares and contrasts it with other available translations performed by other translators. The final step is to check the communicative function of the final product by evaluating its adequacy by questioning recipients (whether laypeople or specialists) and judging their reactions (Ordudari, 2007; Zu & Dong, 2015).

Furthermore, medical translators should signal the major linguistic characteristics of the medical texts, such as the presence of numerous medical terminologies, acronyms, abbreviations, neologisms (newly created words), neoclassical compounds, and excessive use of passive voice. These characteristics help translators realize the degree to which the linguistic change (lexical, syntactic, pragmatic, stylistic, and textual) should be applied to the entire text. It is always beneficial to proofread and edit the final version, which is called "glossing of the TT" (Yaseen, 2013; Velykodska, 2015).

Objective of the Study

Translation students encounter several challenges in translating medical texts due to their unfamiliarity with the scientific genre in general and the medical genre in particular and their inability to apply the various translation procedures they formerly learned on translating the

scientific genre in general and the medical in particular (Buzarna-Tihenea, 2015; Karwacka, 2015). As a result, this study is among a few unique studies carried out in Jordan at Yarmouk University/Department of Translation to investigate the translation procedures required for translating highly specialized medical texts from English into Arabic for laypeople.

It is widely accepted that translating medical texts is not an easy task that merely includes converting information from one language into another using the existing linguistic units (Mayyas, Yunus & Mayyas, 2020). Undoubtedly, the present study is significant for translators who show interest or aspire to engage themselves in the field of medical translation. This study provides a better understanding of how to translate medical texts and remains a useful source because it expands the body of literature on this particular area of research interest. Furthermore, medical translators, especially novice ones who have just started their work, can find this study useful in a way that helps them take effective steps in their practical work. As a matter of fact, the present study employs qualitative methods through interviews; and thus, it suggests practical solutions for medical translation-related problems. The movement of medical translation in developing countries is an important step towards prosperity and scientific development in the present and future. As the field of medical translation needs more scholarly attention today particularly in developing countries, this paper contributes to the growth of awareness towards applying appropriate translation procedures in the field of medical translation.

Theoretical Framework

This study adopts Skopos's theory and Vinay and Darbelnet's model as a theoretical framework to guide this study. Skopos's theory involves six axioms that are needed to direct students' translation in a particular way. This study examines how the application of Skopos theory influences translation strategies suggested by Vinay and Darbelnet (1958) and their application in the medical field. However, students have the option to choose the text-type functional theory introduced by Catharina Reiss in 1981, but it is beyond the scope of this study. Interestingly, Skopos's theory favors no specific strategy over another, which gives the translator the freedom to decide which strategy to utilize in a given situation. Consequently, the translator's main task is to create a TT manifested by its appropriateness to cultural expectations and readers' expectations (Ali, 2014).

It is believed that Skopos's theory was first introduced by Hans Vermeer in 1978. Skopos refers

to "aim or purpose" in the Greek language (Munday, 2012, as cited in Trisnawati, 2014). Interestingly, functional theories have been categorized into three types: text type, translational action, and Skopos theory (Shuttleworth & Cowie, 2007, as cited in Chen, 2017). Our emphasis here is mainly to put towards Skopos theory as it gives the translator the freedom in choosing any translation strategy suitable for his/her work. House (1977, as cited in Warambo & Odero, 2015) showed that the function of a text could be determined by identifying the situational dimensions related to ST. As a result, for ST and TT to be functionally equivalent, they should have similar situational dimensions (Ali, 2014).

Munday (2012, as cited in Trisnawati, 2014) points out that the concept of Skopos is "functionally adequate TT," which denotes that the TT is fit for its purpose. Ali (2014) conducted an interview with Karina Ruth Tabacinic who is a freelance biomedical and certified sworn translator. Tabacinic asserts that a well-qualified translator knows how to transfer lexical and syntactic characteristics from ST into TT to realize the functional equivalent between the two languages, though a variety of linguistic changes may occur. In this context, Tabacinic believes that the functionalist approach could be applied in handling such a type of translation (Ali, 2014). Furthermore, it is the translator's responsibility to provide a TT that corresponds with the audience's expectation as proposed by Skopos theory (Jensen, 2013). Put differently, Skopo's theory makes equivalence a specific case and never puts an end to equivalence in any potential way where source situations are 'functionally consistent' with target situations (Trisnawati, 2014).

According to Skopos's theory, translators are viewed as active figures in a complex communication act, whilst the client's instruction is more important than the ST (Wang, 2018). In addition, it should be noted that Vermeer (1989) asserts that Skopos's theory increases the opportunities for TSs and options for translators. Equally, this theory stresses the importance of paraphrasing strategy as the most suitable strategy in a certain situation as proposed by Vermeer (1989, as cited in Wang, 2018). Although some researchers have confirmed that transference of meaning is accurate and adequate in this theory, oversimplification is manifested by the focus on the message rather on lexical, syntactic, and stylistic features, as criticized by linguistic theorists (Newmark, 1988, as cited in Al-Zu'bi, 2012).

Vinay and Darbelnet's model (1958) has 23 strategies classified into two categories. The first is related to "Direct TSs," which includes three strategies, i.e., borrowing, calque, and literal. The

second is related to "Oblique TSs," which includes four strategies, i.e., transposition, equivalence, modulation, and adaptation. Besides, Vinay and Darbelnet have proposed an additional 16 TSs which are worth listening to here: compensation, dissolution, concentration, amplification, economy, reinforcement, condensation, explicitation, implicitation, generalization, particularization, articularization, juxtaposition, grammaticalization, lexicalization, inversion. However, articularization, juxtaposition (a special type of transposition), grammaticalization, and lexicalization are excluded from the analysis due to their relation to grammar as they could be regarded as extended parts of transposition strategy. It should be noted that Vinay and Darbelnet have labeled these strategies as translation procedures, so it is well-known that there is no consensus among scholars and researchers on the way these "translation process operators" are classified (Bardaji, 2009).

Methodology

This study is guided by a constructivist (interpretative paradigm) philosophical stance in which primary data were collected through interviews with ten experienced MA students who were completing their master's degree at the Translation Department/Yarmouk University in Jordan. It is worth mentioning that these students were practicing medical translation from English into Arabic and were working as job employees or freelancers, for example, two students had worked for "Jordanian Translators Association" (JTA) for five years; five had been working for various "Jordanian pharmaceutical companies" at translation section for more than ten years, while three had been working as freelancers in translating medical texts for more than seven years.

   Thus, this study was designed as a qualitative descriptive case study for collecting and analyzing the data. To provide accurate inferences and truthful interpretations, the thematic analytic approach suggested by Braun and Clark (2006) was chosen. The sampling technique was the purposive one. It should be noted that YU was deliberately selected because it has the highest number of translation postgraduate students in the faculty of higher studies among all universities in Jordan.

    Participants were selected based on certain criteria, i.e., students with higher GPA, wider experience, and currently enrolled in the second year as students at this stage have adequate and sufficient knowledge along with practical experience that both enable the researcher to enrich the

research outcomes and provide in-depth insights into the research problem under investigation. Besides, MA students in the second year are highly expected to have already taken the "translation theories and strategies" course. Semi-structured, open-ended, and in-depth interviews were carried out through Facebook Messenger. Interview questions included the script (general questions established before the interview time to moderate the conversation) and additional questions (asked during the interview depending on the answers of the participants). (See Appendix A for script and additional questions).

A statement that includes brief information about the interview has been announced in advance through the "Translation Department Group" on Facebook, which includes all YU translation alumni (Facebook was specifically chosen as it is quite popular among students in Jordan). Because of the temporary lockdown caused by the COVID-19 outbreak, which occurred during the process of data collection in 2020, interviews were carried out orally at everybody's home in his/her free time. Participation was voluntary and a consent form was introduced prior to conducting the research.

Interviews were moderated and recorded in Arabic to give students the freedom to speak their minds (later, all interview recordings and verbalizations were translated and transcribed in a summary in English by the researcher himself except for sounds, pauses, etc.) (Zhang & Wildemuth, 2009). Thus, oral permission was obtained from MA students to record their talk in Arabic. Every interview lasted for 1 hour approximately. Although the number of interviewees was small, the information introduced was rich (Pope et al. 2006, as cited in Thagichu, 2014).

Qualitative data were analyzed according to the thematic analytic approach suggested by Braun and Clarke's (2006) six phases. Recurrent themes had been identified and coded systematically into categories by constant comparative method. Using this way, our coding process was continuously developed throughout the whole process (Zhang & Wildemth, 2009; Creswell, Klassen, Plano Clark & Smith, 2013).

The researcher coded, renamed, and arranged the obtained data and counted the recurrent themes or categories manually. Afterward, codes were created next to each excerpt of the interview to categorize the themes under discussion. Next, thematic analysis had been done to determine the main sub-themes and the emerging themes (Hanrahan et al., 2015).

The rationale for using a case study research design was to examine in-depth the real-life

contexts of the purposefully chosen sample (Creswell, Klassen, Plano Clark & Smith, 2013). Problems regarding definitions of categories, coding consistency, and coding rules should continue until sufficient consistency is achieved (Weber, 1990, as cited in Zhang & Wildemth, 2009). Quotations and excerpts from students were provided to check the rigor of this study and to allow for auditing and reviewing the obtained findings (See Appendix B).

Braun and Clarkes' (2006) thematic analysis is composed of six flexible, simple, and descriptive steps for analyzing and reporting data. They explained in further detail how to conduct a high-quality thematic analysis as outlined in here. In brief, the researcher familiarized himself with data as this step is the first and most important step because it gives the basis for the ongoing analysis. (Malterud 2001a; Rubin & Rubin 2005, as cited in Thagichu, 2014).

Moreover, the researcher engaged himself in the aspects of the data by reading and re-reading the process (instead of listening and re-listening since the oral interview excerpts had been translated and transcribed into English). Second, the researcher generated initial codes, as this step involves coding the data and providing labels for segments of data. Third, the researcher was searching for themes as this step constitutes the construction and interpretation of the codes; thus, it aggregates the codes under potential themes.

As a result, the emerging themes were constructed from the sub-themes. Fourth, the researcher was reviewing the themes as this step is concerned with quality checking. Thus, data were continuously retrieved to provide refined themes and discard irrelevant ones (Malterud, 2001a; Rubin & Rubin 2005, as cited in Thagichu, 2014).

As for trustworthiness in qualitative methods, on the one hand, the presentation and interpretation of data are adequate, and thus, the researcher is confident in the truth and accuracy of the findings (Credibility) since he designed a transparent process for data collection, data analysis, coding procedures and drawing conclusions. The findings were created by transparent coding procedures (Lincoln & Guba, 1982; Korstjens & Moser, 2018).

Thus, any reader can follow the steps taken by the researcher (Weber, 1990, as cited in Zhang & Wildemth, 2009) (See Appendix B). On the other hand, the researcher insured that the interpretation of data is transparent and consistent as it includes a rich description of participants' quotations (Slevin, 2000; Fatahi, Hellstro¨m, Skott & Mattsson, 2008) (See Appendix B and C for a more detailed description of the interviews script and codification process).

Besides, the credibility of the findings is verified by the fact that most principles and norms were stated by more than one informant (peer debriefing process) as well as the state of saturation that has been reached (Zhang & Wildemuth, 2000). Additionally, students' perspectives were based on relevant experience at career whether in-house or on-the job(Zhang & Wildemuth, 2009).

As a result, credibility was created through informants questioning at pilot testing. Thus, the researcher discussed the questions of the interview with students at the end of each interview and at an informal post-interview time where every student was given the opportunity to take part in the discussion as s/he had already gone through it; hence, they were able to report and evaluate the extent to which the questions are either difficult, easy, relevant, irrelevant, appropriate or inappropriate, etc.

Thus, participants had the chance to give their feedback effectively and honestly after the interview time. To clarify, piloting students before the beginning of the real interview was not highly helpful; thus, after each interview, the inappropriate or irrelevant questions that had been reported by the students themselves were omitted from the interview script and modified for the next interviewees. Consequently, a refined script was reproduced for the benefit of this study (See Appendix A).

On the other hand, transferability (generalizability, applicability, similar to external validity in quantitative research) of the research findings is always questionable in qualitative studies, as indicated by Fatahi, Hellstro¨m, Skott, and Mattsson (2008) since the findings are context-specific (Kivunja & Kuyini, 2017). Particularity instead of generalizability is a property of excellent qualitative research as argued by Greene and Caracelli (1997, as cited in Creswell, Klassen, Plano Clark & Smith, 2013), while Zhang and Wildemuth (2009) stated that transferability of the findings was made possible to other situational contexts or other population by detailed documentation in previous research works.

As a matter of fact, the researcher is not responsible for giving an index of transferability. However, s/he is responsible for giving thick descriptions so that other researchers can make judgments about the transferability of findings to different contexts, i.e., populations and situations (Zhang & Wildemuth, 2009).

To ensure conformability (neutrality, objectivity) of data, the findings of this study are objective, i.e. not biased and entirely dependent on students' responses and there is no personal

motivation resulting from the researcher himself. In other words, our research findings can be measured, confirmed and realized by a detailed documentation of the data examined by other researchers (Bradley, 1993, ac cited in Zhang & Wildemuth, 2009). In addition, the researcher confirmed that his findings accurately and clearly represent the perspectives of students.

As for the dependability criterion (consistency, repeatability, similar to reliability in quantitative research), it measures the degree to which the findings are stable and consistent over time if repeated by other researchers providing similar conditions are met. In other words, it refers to the same findings under similar conditions. It can be realized by an external auditor who examines the raw data, data analysis, coding process, interpretations and other relevant issues (Lincolin & Guba, 1982)

The interpretations of the findings are based on the researcher's skills in order to make sure that the findings have truthfully emerged from data analysis (Lincolin & Guba, 1982). Thematic analysis findings were described for each key theme in the proposed model searching for students' behavior in their real-life contexts.

Interviews' excerpts were made available to show students' conversation. Finally, through deliberate coding and interpretation of the data obtained, our findings of the thematic analysis can develop a new cognitive model as argued by Zhang and Wildemuth (2009).

Results

Data from this study were inductively analyzed. As a result, Fig. 2 represents a cognitive model of the translation procedures employed for translating medical texts for laypeople as illustrated by the sub-themes and emerging themes developed by respondents. Here, the researcher will maintain a balance between description and interpretation of data.

Importantly, the iterative coding process resulted in four key themes, i.e., scanning through medical texts, determining translation theory, determining translation strategies, and improving personal skills and self-interest. The following is an illustration and discussion of these themes.

Figure 2

"A cognitive model for translating medical texts"

Figure 2: Themes and Sub-themes Developed by MA Students for the Procedures Required for Translating MTs for Laypeople
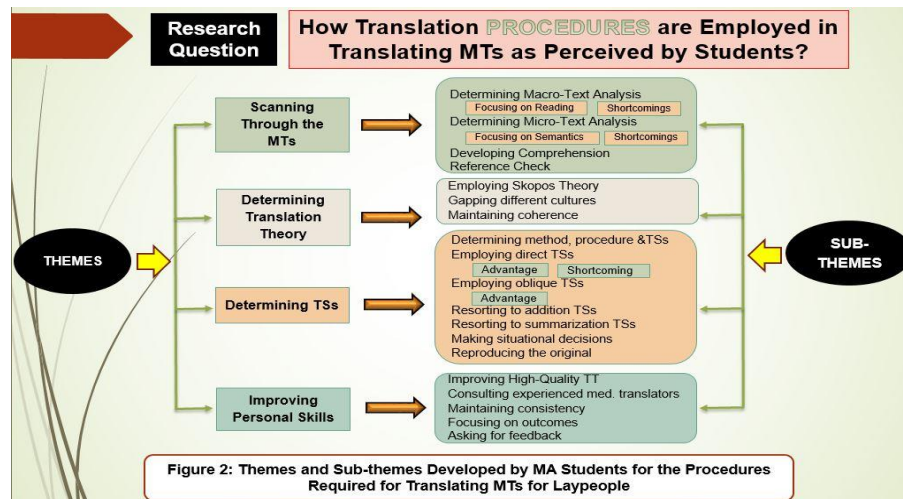
Theme 1: Scanning through the medical texts

All students were provided with subsequent procedures for translating medical texts. Initially, they began by giving hierarchical approach for the steps they follow in translating these texts. At the beginning, they suggested that medical translators should determine whether to use Macro- or Micro-text analysis. Most students (7 out of 10) agreed that Macro-text analysis is an appropriate choice for the translator. For example, three students argued that this process generates a comprehensive idea, and five students claimed that it creates an image in mind:

> Okay, I need to read the entire text all at once to create what is called "the first impression". Thus, you are going to create something called "affinity" between you and the medical text. (S1)

Two students indicated that scanning through the text quickly gets one involved in meaning analysis, which is important in creating the first impression as expressed by one student Furthermore, showing affinity between the translator and the text is a significant factor in generating complete ideas and gaining meaning, as suggested by three students. However, three students presupposed that lack of enough time to read is a significant shortcoming, so reading the whole ST is boring.

In the same way, seven students reported that focusing on reading by scanning quickly through the ST is significant to have a general idea and make notes of the main points. Additionally, if the

text is long, it can be split down into smaller units:

> I resort to reading the whole text first by scanning quickly through the ST to get a general idea of what the ST contains and to make notes of the main points. If I am translating a textbook, I will choose to break it into small chunks and skim every little part to have at least an idea. (S3)

However, some participants (3/10) showed that they prefer to employ Micro-text analysis means of looking up odd words and breaking text into smaller individual words and terms, then getting started to translate the medical terms in isolation and translating the difficult lexicons, which means that students need to focus on the semantics of the text. This is clearly obvious in which student 9 stated:

> As for me, I prefer using Micro-text analysis strategies because I'm convinced that reading the whole text is going to be boring, tedious, and time-consuming. I will look up unknown individual medical terms and strange words. (Student 9)

However, four students criticized this process as it makes no logical connections or relationships between sentences, which affects the quality of the final product.

It seems that most interviewees (7 out of 10) favored using Macro-text analysis over Micro-text analysis (3 out of 10). Thus, they reported that having a comprehensive idea about the medical topic, making logical relationships between sentences and paragraphs and adding comments and notes have considerable and enormous advantage.

To increase the comprehension of the ST, discussing the ST and TT pairs with the client, commissioner, or initiator from the very beginning will add an extra advantage to translation, as reported by two students. For example, student 1 stated:

> Let's consider that the commissioner or the initiator of the translation wishes to revise some sentences in the ST and the TT and make some comparison and check on its corresponding equivalents with the original in order to evaluate or judge its faithfulness, s/he should be satisfied with such a translation. (S1)

Often, the medical translator seeks to find enjoyment while translating comprehensible, clear, logical and intelligible materials. This is shown by four interviewees. For instance, student 6 said "*I feel like enjoying the text while reading to identify new cognitive process of how to perform my translation*". Additionally, student 10 felt that "*personally, I believe that reading the whole text is*

amusing and exciting".

All students agreed that consulting reliable resources is significant in medical *translation*, for example, three students said that searching for online resources, searching for images from any reliable resource (two students), accessing the online database (two students), and consulting specialized medical dictionaries (mono-bilingual) (10 students) is very important as this step is called "reference check", e.g. student 5 considered that:

> I need to find and search for online resources to help me out with any particular topic I'm going to translate; this process is called 'reference check.' Furthermore, internet access is available everywhere, which makes everything easier than before. (S5)

Theme 2: Determining Translation Theory

All students, without exception, expressed various reasons for the need to determine a translation theory since they feel this step is inevitable before getting involved in translation. Consequently, they all agreed upon the need to use a theory such as Skopos's theory in translation. Because this study adopts the Skopos theory, students were asked to provide their opinions about its specific use. Consequently, six students revealed that contacting the initiator or client and requesting a translation brief to determine the purpose of the translation is the main reason behind adopting the Skopos theory. For example, student 2 expressed that:

> In my opinion, I need to contact the client or the initiator of the translation in order to provide me with the "translation brief" so I can determine the function and purpose of the translation. (S2)

It is indeed important to note that a large number of students (6 out of 10) revealed that medical translators should assign a purpose for translation based on the translation brief provided. Student 1 stated that if no brief is provided, then the translator can discover the function and decide a purpose from analyzing the text material. Interestingly, all students revealed that they want to maintain or change the function of translation, as clearly indicated by student 1:

> Of course, a medical translator should pursue a theory and follow a certain function that is informed by the translation brief. One may discover the function of the original and want to change the function for another purpose; this could be

happening as original works are written for one purpose, but different associations and companies, even hospitals, might want to change the original effect for something appropriate to meet their needs. We should not change the original content, but still, we need to manipulate the style to make different effect if necessary. (S1)

This statement reveals that original works are written for one purpose, but different agencies, hospitals, etc., might want to change the original effect for something appropriate to meet their needs. All participants agreed that adopting the TT-style is important in gapping different cultures along with eight students who claimed that simplifying the TT sentences is crucial and might be changed according to the situational circumstances and cultural expectations of TT recipients as student 7 reported:

In other words, the English writing style is completely different from Arabic; thus, laypeople need a simple, natural, straightforward, easy, plain, and uncomplicated style to understand the topic; otherwise, no use of your translation. (S7)

Admittedly, gapping different cultures is now very important in this phase as highlighted by all students. For instance, students 5 indicated that:

My objective is to make target readers understand the TT despite the differences in cultural, educational, social, and scientific backgrounds. So, the gap is apparent now, and to gap the different cultures is becoming more difficult. (S5)

Almost all participants (9/10) declared that focusing on cultural expectations is one of the crucial aspects of Skopos theory; therefore, student 4 confirmed that:

It is only important for medical translation to convey the intended meaning faithfully, provided that the SL form is not important. I mean, I can transfer and change the original form and style as I see appropriate without limitations, and this is one of the rules of Skopos theory. (S4)

Certainly, almost all students (9 out of 10) argued that one of the main rules that *Skopos* theory adopts is "dethronement of the ST" as stated by Vermeer (2004). Student 5 added "*I would like to point out that offer of information is reasonable and feasible her*". Student 6 also expressed that:

In my experience, I suggest that medical translators should edit the style of translation. The ideas are the same but conveyed in a different form. (S6)

One participant pointed out that age constraints should be considered in *translation*, i.e. student 3 presupposed that "age should be taken into account. Communicating with children is different from communicating with adults. As a translator, your mind should be working in two different ways".

It is worth mentioning that maintaining internal coherence, according to Skopos's theory, is very important, as explained by half of the students. As an example, student 4 demonstrated that:

> The translation is going to cut out some of the words in English; in translation, you have to make compromises, as I learned this in my degree. In order to make a coherent Arabic sentence, you need to make your translation perfect, so you need a lot of time and a lot of effort. I want to add everything in the sentence and make it completely coherent in spoken words. (S4)

Notably, maintaining coherence is a major factor in adopting Skopos theory as indicated by all students. More precisely, four students presupposed that maintaining coherence with ST is important as demonstrated by student 1: "*This doesn't* mean *that I have to be unfaithful, but I rather should be faithful to the content not to the style and form of the ST; thus, this can give me a space to choose among a variety of translation strategies*".

Theme 3: Determining translation strategies

The responses provided by students on every question share much in common under each theme. For instance, the subsequent sub-themes are closely related to how to address the translation strategies in translating medical texts after deciding on applying the Skopos theory. Student 5 claimed that:

> I need first to comprehend the idea or the purpose or function of every paragraph (if applicable) in the text completely to be able to determine what method, strategy, and technique I want to follow. (S5)

Additionally, student 2 assumed that:

> Medical translators should be aware of applying different TSs in translating medical texts. This requires an understanding of the text first. Once done, the TT needs to be introduced appropriately to target receivers. Hereafter, the medical translator needs to focus on how to recreate the content of the original message in a faithful

way by employing the various TSs learned before to assist in finding specific solutions to challenges raised during translation. (S2)

Furthermore, six students confirmed the importance of employing direct TSs (literal translation, borrowing, and calque) in medical translation and gave some useful information on how to apply them. For example, student 1 suggested that:

> One should know how to use every individual strategy, such as the calque strategy, i.e., UNESCO, which is translated into Arabic as (يونيسكو) or could use adaptation or equivalence strategy, such as (منظمة الأمم المتحدة للتربية والعلوم والثقافة). Also, the sentence 'if you are allergic to clindamycin' should be translated to (إذا كنت تشعر بحساسية تجاه الكليندامايسين), while using calque gives such a translation which is now acceptable in Arabic (إذا كنت مصابا بحساسية تجاه الكليندامايسين). Also, medical translators should know that transposition is related to grammar. (S1)

Likewise, all students confirmed that the ultimate faithfulness to literal translation does not always mean effective and adequate results and can only be used for zero or nil equivalence, as stressed by student 7:

> Speaking for myself, I don't like to be literal in my translation. Principally, literal translation in most cases is not acceptable by readers because they might probably show a total lack of comprehension, or the text is beyond their comprehension or no comprehension at all. (S7)

However, half of the students were against employing literal translation and being faithful to ST structure since it gives a low-quality final product, e.g., student 5 expressed that literal translation is rarely useful:

> As for me, I focus on TL (Arabic) when I translate from English into Arabic because concentrating solely on the ST will give a low-quality final product. On the contrary, putting a sharper focus on the TT increases and develops comprehension, although some argue that the meaning of the ST might probably not be faithfully reproduced in the TL. (S5)

Arguably, half of the students were for and against literal translation. For example, student 6 assumed:

> I hold the view that literal translation is not the final objective for any mindful

> translator who wants to deliver a good message. I can't deny that literal translation
> is principal, but this is true at the initial steps of translation in order to provide you
> with a copy of the translated work but not the final copy. (S6)

Additionally, some students (3/10) emphasized the inevitable and excessive use of borrowing in medical language due to the lack of corresponding counterparts, as demonstrated by student 10:

> I prefer to be restricted to direct translation, i.e., borrowing as much as possible
> provided that it preserves the original meaning, but in various cases, I need to adopt
> other useful strategies to overcome any tangible dilemma. (S10)

Alternatively, all students confirmed the importance of employing oblique TSs, e.g., transposition, equivalence, modulation, and adaptation. They give better results because they serve the purpose of adequacy, as called upon by Skopos theory.

By the same token, student 1 has also asserted that 'modulation refers to changes in ideas and thoughts such as 'it is not impossible' which is rendered into (من السهل), but not to (من غير المستحيل). Modulation means a change in the measurement. However, it could be observed when you change the measurement unit; for example, if the ST includes '40 Pounds' then the medical translator changes it to (كيلو غرام 18,1) in order to look natural in Arabic, at least in Jordan'.

Student 1 also confirmed that:

> At certain times, I need to describe, instead of merely translate, a process that refers
> to amplification, dissolution, explicitation, or reinforcement strategy. In addition to
> that, the dissolution strategy includes extra words and expressions. They all refer to
> addition processes as far as Skopos's theory is concerned. Also, compensation
> strategy is very important where the translator notices a lack of presentation and
> goes to reproduction in the final version. (S1)

Another factor worth mentioning is that applying Skopos theory entails using oblique translation strategies as agreed upon by all students. Certainly, as mentioned earlier, Skopos's theory focuses on adequacy more than equivalence, as presupposed by six students; thus, it employs transposition, modulation, amplification, condensation, concentration, inversion, adaptation strategies, etc., to adapt the TL style and develop comprehension as believed by all students which, in turn, should be reflected in the TL as mentioned by student 8:

> To illustrate, the ST has been written for the sake of source readers and is free of

unsuitable, inconvenient, inappropriate, inadequate, or clumsy renderings. This, in turn, should be reflected in translation. I mean that the TT should also be suitable, appropriate, convenient, adequate, and free of clumsiness and meaningless ideas for target readers. (S8)

To illustrate this point, student 4 stated that:

As far as I am concerned, if the ideas and thoughts of the original writer are clear to the ST readers; thus, ST readers will be fully aware of what the original author intended to say. Now, the target audience depends on the translator to make things clear, not only to merely transfer the words from English into Arabic. But the medical translator needs to be fully aware of what s/he is translating and attempts to simplify things. (S4)

At this critical point, as mentioned before, many students (6/10) highlighted the importance of the notion of adequacy over equivalence in view of Skopo's theory. For example, student 5 asserted:

Alternatively, the notion of equivalence is controversial, and the dichotomy of translation is still contradictory. I need first to totally comprehend the idea or the purpose or function of every paragraph in order to be able to determine what method, strategy, and technique I want to follow. I understand that equivalence is realized on the phrase or word level, while adequacy is realized on the entire text level, the thing that matters to us most. (S5)

One student explained the need to resorting to additional TSs in order to make the TT clear for an audience, such as adding parenthesis or footnote:

The best strategy is to transliterate or borrow these expressions, then a description should follow, or a footnote could be used to indicate the use of the amplification strategy. (S4)

However, most students (8/10) agreed that resorting to summarization TSs is the best way to address laypeople and make them feel they can understand the content. Eight students commented on simplifying the TT sentences by establishing summarization strategies such as implication, condensation, economy, concentration, and implicitation, which supports the use of summarization strategies; for example, student 4 stated that:

Since non-specialists are concerned, the simplest form of a message should be employed with the most economical strategies that motivate recipients to read; this is not to say that translators should change the main subject of the translation, but rather to rewrite the original in a simple and easy way. (S4)

Based on these different opinions, the medical translator should take care of motivating laypeople to understand and read. Student 9 also put forward:

I really respect and like my field of study and feel it is great. I'm the type of person who can simplify things. I'm a kind of a person who likes to extrapolate a lot. Therefore, I feel like more into using economy, condensation, concentration and implicitation translation strategies. (S9)

Additionally, eight students affirmed that resorting to summarization strategies and thus employing various TSs motivates reading as student 7 suggested *'using summarization TSs is better than using addition TSs since you are translating for laypeople'*. Furthermore, student 6 added *'I advise translators to use summarization TSs in order to increase comprehension for laypeople'*.

As discussed earlier, there are some other TSs i.e. inversion, generalization and particularization suggested by Vinay and Darbelnet which are considered very useful according to most students (6/10) in which they were against literal translation or rather they supported employing literal translation in the very beginning then moving immediately to functional translation.

One student (student 4) supposed that '*I will not change the data, but reorder using inversion, compensation, and adaptation*.' All students ensured the necessity to make situational decisions by employing varying types of translation strategies such as inversion (2/10), generalization, and particularization strategy (3/10) based on the situational decisions as highlighted by student 2 '*as far as I understand, my experience is a combination of thought, knowledge, and perception of situational problems encountered while translating and demanding a certain degree of making situational decisions*'.

On this issue, all students agreed that the function of a text is determined by identifying the situational dimensions related to ST, which motivates translators to set out the situational and temporary decisions accordingly, as introduced by student 5:

It also means that I need to be part of the translation work and get involved in the meaning analysis process, then reform, restructure, and reproduce something that looks like a natural form for Arab readers. (S5)

Similarly, five students pointed out the importance of reproducing the original work, for instance, student 4 represented *'I review and read over the translated material, resynthesize as if I'm the original author, but in terms of the information produced in the ST'*.

Three students approved the advantage of employing literal translation in the very beginning of translation and then moving to functional translation such as student 2:

Looking for a literal translation that gives such a draft, then it is the translator's job to find and determine the appropriate translation for single and whole medical text. It looks like looking for the synonymous words that fit the text. (S2)

However, five students presumed that applying literal translation and then resorting to functional translation is nonsense and will give a low-quality end-product since translators should go directly to functional translation using oblique translation strategies, as student 5 put it:

As for me, I focus on TL (Arabic) when I translate from English because concentrating solely on the ST will give a low-quality final product. On the contrary, putting a sharper focus on the TT increases comprehension, although some argue that the meaning of the ST might probably not be faithfully reproduced in the TL. (S5)

Theme 4: Improving personal translation skills and self-interest

Almost all interviewees (9/10) consider that having personal translation skills (such as language and cultural knowledge, reading comprehension skills, research skills, writing style, computer skills, grammar and punctuation skills) and translation competence (textual, subject-matter, cultural, and transfer competence) provide more freedom in dealing with the ST and TT pairs such as providing flawless, seamless and accurate TT, checking missing information (1 student), avoiding misconception (3 students), avoiding misinterpretation (2 students) and avoiding mistranslation (2 students) which is seen crucial as student 5 added:

As far as I'm concerned with medical translation, I need to check on missing

information, i.e.,medicine names, pharmaceutical drugs, names of locations and cities, wrong numbers, decimal points, dosage, medications, intra-medications, untranslatedsections, or mistranslated sentences. (S5)

Nine participants pointed out that having personal skills and self-interest provides a high-quality end product. To illustrate, the medical translators should understand the STs; otherwise, they can't translate adequately, though they can still translate but without any close connections and logical links between the sentences, as student 8 put it:

> The sentences in the TT will have no clear ideas, the entire text is vague and can't be understood even for medical specialists. Besides that, my translation product will not be comprehensible, clear, logical, and coherent. Therefore, you are likely to translate poorly and incorrectly, which adversely affects the quality of the final product. (S8)

Eight students confirmed that consulting experienced medical translators, such as consulting linguistic translators (2 students), medical practitioners (5 students), and/or experienced medical translator (1 student), will result in more effective and appropriate results, as indicated by student 2:

> Consultation is significant, imperative, and of great importance. It increases translators' understanding of the medical topic. Sometimes I find a term which needs further explanation, or I may face a complex, intricate and complicated paragraph, I will ask a physician who has similar area of expertise (similar field) to further elucidate on this topic. (S2)

All students presented that consistency should be always maintained throughout the translation process. Besides, student 9 understands that *'the very big idea is to translate perfectly and without syntactic or semantic errors'*. Furthermore, consistency means logical coherence with harmonious uniformity and agreement among all sentences within the entire text as suggested by all students.

To illustrate, all students assumed that maintaining consistency is an essential factor in achieving perfectionism in translation as pointed out by all students. There are also other essential elements that play a key role in refining the final translation and manipulating TSs which include having skills in proofreading, checking semantic units (4 students), checking spelling errors (2

students), checking syntax (6 students), checking poor punctuation (2 students), checking conjunction (1 student) and defining the writing style (4 students).

In this case, student 3 claimed that *'you need to check your translation semantically and syntactically at the end of translation'*. Additionally, student 4 suggested that '*speaking for myself, when I finish translation, I go and correct misspellings, punctuation marks, word order, awkward sentences, and illogical relationships'*. Likewise, student 1 stated that:

> Checking syntax helps translator specify how language units are arranged to create meaningful and consistent sentences. Checking syntax is helpful in correcting spelling errors, punctuation, determiners, pronouns, possessive nouns, word order and so on. Since syntax is important in writing, it can define translators' writing style. Style includes the choices the translators select among a variety of options within the grammar rules. I think proper grammar is central and vital to translation even though the recipients are not specialized in language. (S1)

All students suggest that the medical translators should focus on achieving the desired outcomes by improving their language proficiency so as five students shared similar views concerning attaining language proficiency. To clarify, these five students mentioned that improving language proficiency in both languages is helpful in restructuring the final translation and in determining the appropriate TSs as well which are absolutely required for giving an acceptable final work as student 7 presupposed that '*personally, I believe that writing the TT is dependent on two factors: language proficiency which belongs to the medical translator and the type of TT receivers'*. Additionally, student 3 showed that '*text comprehension along with proficiency in language play a significant role in motivating the TT recipients to read and interact with the TT'*.

The response above suggested that there should be a certain level of formality in language (3 students). This behavior reflects that all students should be aware of language formality and pay considerable attention to language requirements. For example, student 1 believed that:

> If the final readers are teenagers or general public, the translator need to alter the standard form of the SL and reduce its level of formality which should be told by the initiation of the translation through providing a 'translation brief'. Therefore, the medical data are delivered in another style for different culture. For example:

Anaphylactic reaction has been translated into (تفاعل تأقي) which is intended for specialist, while it should be translated (تحسس) for general public. (S1)

Subsequently, leveling off the degree of formality is indispensable for achieving perfectionism in translation as advocated by student 1 who reported that:

> I think proper grammar is central and vital to translation even though the recipients are common people and not specialized in language. This is due to the degree of formality. We need to transfer an appropriate medical message to readers in a relatively acceptable level of formality. Therefore, we don't have to use informal language at any means. We can't degrade or lower the formality of medical language. This also indicates the capability and competence of the medical translator. (S1)

Besides, two participants confirmed that checking formatting and making continuous revision is an essential factor in achieving perfectionism, while one student argued that using CAT tools is also crucial in achieving perfectionism, for example, student 6 mentioned:

> Therefore, medical translators' work should be invisible and no sings that indicate it's a translation not an original. This, of course, requires continuous revision and quality checking. Recipients should be the primary concern for translators, I will apply my own style in performing translation. (S6)

Above all, these steps are required to produce a natural-sounding text in Arabic as discussed by two students. Moreover, four students suggested that the medical translators are recommended to enquire about recipients' feedback and ask initiators or common people about their opinions regarding the translated material.

Four students argued that asking for feedback raises confidence, builds self-esteem, motivates self-interest, enhances the criteria of quality assessment and makes attractive work as suggested by two students. For example, students 8 put it:

> Speaking personally, I wanted to specialize in one field of translation, I chose the medical field because one day I had the chance to translate a medical brochure; therefore, I enjoyed it and felt like it was a perfect starting point which gave me an absolute, tremendous, high and increasing confidence in myself. (S4)

In the same way, student 2 revealed that:

I advise every translator to ask for feedback once s/he finished the translation task since feedback assists in improving the quality of the final product and builds up a broad picture of self-esteem and confidence. (S2)

Discussion

Our data analysis represents four key themes generated by MA students to investigate the translation procedures required for translating the highly specialized medical texts from English into Arabic for laypeople, i.e. (1) scanning through the medical texts, (2) determining translation theory, (3) determining translation strategies, and finally (4) improving the personal skills and self-interest (See Figure 1).

The first key theme discusses scanning quickly through the medical tests to determine whether to use Macro- or Micro-text analysis. Our findings suggested that Macro-text analysis refers to scanning quickly through the medical texts to generate a comprehensive idea, create the first impression, create an image in students' mind and display affinity with these texts, while Micro-text analysis refers to looking up odd lexicons and translating medical terms and difficult lexicons in isolation. Although most students reported that Macro-text processing helps identify new cognitive process of how to perform medical translation which is in harmony with An-nayef's (2002) study who suggested that Macro-text processing is always beneficial in terms of developing comprehension, some argue that applying this procedure is disadvantageous and has some shortcomings since it seems boring, tedious and time consuming.

While some students confirmed the advantages of employing the Micro-text analysis which focuses on translating the difficult lexicons and terminologies as advocated by An-nayef (2002), others pointed out that this procedure makes no logical connections between the sentences. Additionally, the present study asserts that common practices such as searching for online resources and images from any reliable resource, accessing online database and consulting specialized medical mono-bilingual dictionaries (referred to as reference check) are fundamental in gaining further information about the clinical or medical subject, the findings which are in line with Al-Jarf's (2018) findings.

As displayed in Figure 1, the second major theme is pursuing a theory and following a certain function as explained by all students which is supported by Erton and Tanbi (2016) who assert that

a translation theory is developed to guide the process of translation. Consequently, contacting the initiator or client and requesting a translation brief in order to assign a purpose for translation is the main cause behind adopting Skopos theory as revealed by most students, the result which is supported by Vermeer (2004, as cited in Trisnawati, 2014). Therefore, the findings of this study support and augment the rules of Skopos theory that the original work might be written for one purpose but different agencies, hospitals, etc. might want to change the original effect for something appropriate in order to meet their needs. These results are consistent with Trisnawati's (2014) results.

All students without exception provided a clear-cut perspective that dethronement of the ST refers back to "an offer of information" suggested by Vermeer which further means that writing style might be changed according to the situational circumstances, cultural expectations, age constraints, internal coherence, coherence with ST, simplifying TT sentences and adapting TT style. These findings match those observed by Trisnawati (2014) that medical translators can change the original style as they see appropriate without any limitation. Thus, the objective of any medical translator is to make the target readers understand the TT despite existing differences in cultural, educational, social and/or scientific backgrounds as highlighted by all students. So, gapping the different cultures is becoming of paramount importance as supported by Ezepleta (2012, as cited in Karwacka, 2015). Moreover, our findings further support the idea that a medical translator needs to make many compromises if s/he wants to add everything in the ST as advocated by Al-Zu'bi (2012).

The third essential theme suggested by all students is determining the translation strategies followed throughout translation in order to find specific solutions. Consequently, this study shows the importance of employing direct TSs such as borrowing, calque and literal translation in medical translation. However, the findings of the present study advocates and/or rejects to a varying degree the statement that says employing literal translation gives a low-quality final product. As a result, almost all students argue that literal translation always provides a nonsense translation and distorts the original meaning because propositions, intentions and cultural-bound expressions are never preserved in the TL. On the one hand, this result is supported by a study conducted by Hanrahan et al. (2015) which has similar results suggesting a need for more than literal translation since direct translation never always ensures one-to-one equivalence in SL and TL pairs. This is also

presupposed by the results of An-Nayef's study (2015, as cited in Al-Jarf, 2018) who points out that some translated medical texts used at faculties of medicine were vague and unclear owing to the excessive use of literal translation and uncommon Arabic medical terminologies. On the other hand, one student argue that literal translation is considered a proper strategy in translating medical texts because it reduces the problem of zero or nil equivalence especially in the medical translation. This result matches the results observed by Warambo and Odero (2015).

Our findings demonstrate students' tendency to use oblique strategies or sense-for-sense translation over direct or word-for-word translation. These findings correspond those obtained by Povoroznyuk (2014) who points out that the translator of the medical fictional texts tends to explicate definitions, interpret the ambiguous facts and present descriptions.

Interestingly, all students confirm that Skopos theory focuses more on adequacy than equivalence. Hence, these findings align with Benchabane's (2015) findings who mention that medical translators often search for adequacy in their final translated work. There are several possible explanations for this result. One reason is that the target audience greatly depends on the translator to make things clear. For a second reason, this idea is contradictory because it often puts any translator into confusion whether to explicitly elaborate on the ST (especially if the ST is vague or complicated) or merely transfer the lexicons from English into Arabic without further manipulation. For another reason, we are interested in adequacy rather than equivalence because equivalence requires maintaining the same function which is not secured in this theory. These findings match those observed in earlier studies such as Trisnawati's (2014) study.

While some students confirm the importance of using addition strategies, i.e. amplification, reinforcement, explicitation and dissolution for laypeople, most confirm the need for employing summarization TSs, i.e. economy, condensation, implicitation and concentration. Our data analysis shows that addition TSs are used to reduce the ambiguity inherently found in medical texts and to provide different aspects of clarification, while summarization TSs are used to simplify the TT sentences, motivate reading, create concise ideas and induce better comprehension for laypeople as suggested in this study. Similarly, our findings match those observed in a study conducted by Warambo and Ordero (2015). As opposed to this study, Povorozynuk (2014) argued that compression/reduction strategy (similar to summarization TSs in this study) was rarely used among participants.

Data analysis shows that our participants have a strong natural tendency to summarize more than to clarify. Although previous studies indicated that addition TSs are useful in translating the medical texts (Hanrahan et al., 2015), our study reveals that summarization TSs can greatly improve the quality of translation and develop further comprehension especially for laypeople. These results further support the idea that addition TSs requires a full comprehension of the STs, while summarization TSs require more profound background knowledge, high intellectual abilities, critical thinking and in-depth searching in order to develop focused translation that can be attributed to students' experience in this type of translation.

Interestingly, our findings confirm that amplification strategy is not recommended for laypeople even though Povoroznyuk (2014) suggests that this strategy was the most used strategy in translating a fictional text "The Signature of All Things" from English into Russian. The result of this study completely contradicts the claims made by previous studies, such as a study carried out by Arjomandi and Kafipour (2016), because it presupposes that the general public never prefers to read outside the text such as reading footnotes or endnotes, yet they are only interested in reading within the text.

All students in this study indicate that the information in the medical texts should not be changed by any means, but reordering occurs using certain TSs such as inversion, generalization and particularization; thus, demanding a certain degree of making situational decisions which is based on translators' own experience, the result which is in line with House (1977, as cited in Warambo & Odero, 2015). Therefore, these findings support and augment other researchers' results by showing that translator's own experience includes a combination of thought, knowledge and perception of situational problems.

Remarkably, these findings confirm that translating literally then opting for functional translation using oblique and additional TSs is the best procedure for resynthesizing and reproducing the original ST. However, these data must be interpreted with caution because literal translation is limited to specific situations as suggested by participants, i.e. it helps in offering an initial manuscript for experienced translators, boosts productivity and determines the most likely TSs to be used and in what way these strategies can be employed. The findings of this study are in agreement with those observed by Povoroznyuk (2014) who showed that literal translation violates product norms which are guided towards the SL features and thus the ultimate faithfulness

to literal translation does not always mean effective results.

Our data analysis shows that the final critical theme deals with improving the personal translation skills and self-interest. The present findings suggest that providing high-quality end-product depends on student's personal translation skills (e.g. knowledge skills, cultural skills, etc.) that make the TTs closely connected and logically linked to each other. Furthermore, the findings of this study show that having personal translation skills and self-interest is useful in providing flawless and seamless TT and avoiding misinterpretation and mistranslation in the final product. These results confirm the association between the role of experience and translation skills in decision making and gaining sufficient knowledge as advocated by Txabarriaga (2009). Additionally, these findings match those obtained by Abdelmajid and Hassan (2017) who assert that medical translators whether professionals or linguists should have sufficient translation skills, intensive on-the-job or in-house training and comprehensive experience. Besides, our findings are in line with those obtained by Coban (2015) and Argeg (2015) who confirm that learning of the translation skills requires certain competences (e.g. subject-matter competence, transfer competence, etc.) such as motivation of students, tendency for translation, self-interest and doing extra translating exercises.

In a similar manner, some students indicated that consulting experienced medical translators whether linguistic translators or medical practitioners will lead to more successful results. This result agrees with Karwacka (2014) who believed that finding a partner for verification adds to overall quality. In addition, KOŚCIAŁKOWSKA-OKOŃSKA (2012) argued that consulting medical professionals, e.g. doctors, pharmacists, nurses contribute to a greater quality of TT and an effective communication between translators and recipients.

The findings of the present study support and augment these results by showing that maintaining consistency is an essential element in glossing the final translation which requires having skills in proofreading and checking semantic units, spelling errors and syntax. These findings further support the idea suggested by Coban (2015) who indicates that translation skills require having certain competencies that increase the inclination of students towards translating medical texts, self-interest and doing extra translating exercises.

Focusing on the outcomes by improving language proficiency has been shown to be a useful method in restructuring the final TT as supported by Al-Jarf (2018). These results match those

observed in earlier studies, e.g. Sabbour, Dewedar and Kandil (2010) revealed that students are advised to increase their experience and improve their language proficiency before enrolling at college by encouraging them to read more medical textbooks and revising bilingual specialized medical dictionaries. It is noteworthy in our study that there should be a certain level of formality in language which can be told be the client or commissioner of translation if applicable. These results are in line with Nord (2005, as cited in Heydarian, 2017) who reports that the higher the level of formality the fewer number of laypeople will understand the translated medical materials.

Another point to consider is that checking formatting and making continuous revision is an essential factor in achieving perfectionism in translation in an effort to create a natural-sounding text in Arabic. Similar suggestions come from Txabarriaga (2009) and Mangano (2016) who ensure that the revision of the TTs is fundamental to check their correctness and make any necessary amendments. Likewise, our findings support other researchers' views by showing that medical translators' work should be invisible and no sings that indicate it is a translation and not an original as supported by Obeidat, Haddad, Al-Najadat and Amine (2015).

Our findings also confirm the association between asking for feedback and confidence because feedback assists in improving the quality of the final product and thus builds up a broad picture of self-esteem and raises confidence. This result emphasizes the importance of including the audience in quality assessment and supports Karwack's (2014) claim that translators can enquire about the success of communication and the interactive role between the two parties which is among the essential quality-factors. We would add that this could lead to motivating the self-interest, making attractive work, helping students develop conscious decisions about adopting the appropriate style for laypeople as indicated by all students and advocated by Txabarriaga (2009).

Conclusion

Based on the preceding discussion and the analysis of the qualitative data, this study provides a cognitive analytic model that includes successive procedures for translating the medical texts developed by professional students who are completing their MA training in the Department of Translation at Yarmouk University in Jordan. The objective of this descriptive case study is to investigate the translation procedures required for translating the highly specialized medical texts from English into Arabic for laypeople. Data were collected from semi-structured, open-ended

interviews with ten professional MA students who have sufficient experience in translating medical texts. Because medical translation includes several complex and intellectual activities that need critical thinking, students can integrate the functionalist Skopos theory (1978) and Vinay and Darbelnet's classification (1958) into the proposed cognitive model that implicitly involves a wide variety of translation strategies. This model proposes crucial steps for students to acquire advanced translation skills that aim to improve their performance in medical translation. This model includes scanning through the medical texts, determining translation theory, determining TSs and improving personal skills and self-interest.

This study reflects the effectiveness of establishing translation procedures for translating medical texts as a way of improving the competence and knowledge of students. Data analysis shows that Macro-text analysis is preferable in medical translation because it generates a comprehensive idea in translators' mind. In addition, this study ensures that Skopos theory focuses more on adequacy than equivalence because equivalence requires maintaining the same function which is not secured in this theory. Moreover, it is of great importance to use summarization TSs for laypeople instead of addition TSs because these strategies can simplify the TT sentences and increase comprehension for laypeople. Thus, the simplest form of a message should be used with the most economic TSs that motivate recipients to read as long as non-specialists are concerned. Furthermore, amplification strategy is not recommended for laypeople because it includes reading outside the text.

The study also rejects to a certain degree the statement that says employing literal translation gives a low-quality final product. Literal translation is considered a proper strategy in translating the medical texts because it reduces the problem of zero or nil equivalence, boosts productivity and determines the most likely TSs to be used and in what way these strategies can be employed. Although the usefulness of literal translation is limited to specific situations, it seems possible that literal translation can be used by experienced translators in the very beginning then moving towards functional translation.

These findings recommend that Yarmouk University should include scientific or technical translation courses to increase students' awareness of the translation procedures of this specialized type and allow them to broaden their knowledge in medical translation. Furthermore, these results build on existing evidence that initiates the need for self-interest to reach the threshold that enables

students to be eligible to translate medical texts. As for the limitation of this study, the findings could not be generalized to other contexts. We recommend setting future research against the background of higher education intervention program concerning translation procedures considered the assumed learning outcomes. This would significantly help researchers yield more fruitful results in their academic studies. This study is crucial as it contributes to different scholarly discussions in the field of translation studies, especially in improving the learning practices and teaching methods.

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