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Evaluation of the Effects of Using Computer Assisted Translation in Learning New Vocabularies

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Abstract

Among teachers of second language, it is widely believed that repetition is the most practical approach toward learning new vocabularies. Without doubt, new technologies leave profound impressions in academic studies. Translation Studies and Teaching English as a Foreign Language (TEFL) are not exceptions. The present study endeavored to analyze the effect of Machine Translation in learning new vocabularies among freelance translators. For this reason, the researcher utilized SDL Trados Studio 2017 trial version, as a translation memory (TM) tool. The participants of the study, who were selected via OPT test, were 50 out of 68 freelance translators, divided randomly into two groups as control group and experimental group. The participants first took a vocabulary pre-test and then exposed to 10 authentic texts with some repetitive chunks for translating. The control group used paper dictionary, on the other hand, the experimental group used TM tools and had access to online dictionary and previous storages of data. During this one month period, students from both groups could contact the researcher via e-mail or telephone call to consult about any upcoming problems. After sessions of training how to translate using SDL Trados Studio and translating whole texts, the participants were asked to take a vocabulary post-test. In the next step, the results of two tests were rated by the researcher. After analyzing the scores, the researcher inferred that, using data storages can have adverse effect on learning new vocabularies, owing to the lack of repetition during translating.

Keywords: *Computer assisted translation, translation memory tools, learning new vocabularies, interdisciplinary technologies, teaching English as second language*

Introduction

In today's computerized world new gadgets and software are introducing to the market on a daily basis to enhance human's life and increase the standards of living. These newly introduced

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software are designed for every aspects of life whether academic or non-academic. Teaching new languages is not an exception and new technologies play a crucial role in soothing learning another language. Moreover, new fields of science emerge everyday around the world and Translation Studies is an indispensable part of today's communication. Since the mid-1980s, translation tools have taken over more and more of the daily lives of translators and translation projects.

On the one hand, vocabulary is the backbone of any language. Without extensive vocabulary knowledge, even those who show mastery of grammar might experience the failure to communicate. Many foreign language learners know the feeling of not being able to remember the right word instantly in a conversation because of the limited range of vocabulary they know. This feeling of inadequacy often hinders further development of the language. On the other hand, vocabulary does help language learners to form sentences and express themselves in meaningful ways. It has been proved to be powerfully related to L2 acquisition with many studies as well. Mastery of vocabulary can only be achieved with the teaching strategies that appeal to various learning styles. Recent studies have proven many benefits of different technology-based instructional materials for effective verbal and written communication (Schmidt & Hegelheimer, 2004; Pazio, 2010; Khazaei & Dastjerdi, 2011). Therefore, many higher education institutions today are using blended learning as a supplementary means in developing students' vocabulary knowledge. Blended learning approach in teaching foreign language has become a matter of considerable interest to language teachers all over the world. As opposed to pure e-learning which refers to using only electronic media to learn, blended learning supplement traditional face-to-face teaching and learning environment with different kinds of technology-based instruction. Bielawaski and Metcalf (2003) report that blended learning focuses on optimizing achievement of learning objectives by applying the right learning technologies to match the right learning styles to transfer the right skills to the right person at the right time. Teaching vocabulary through web-based tools is not totally a new trend. Marsh (2012) states that we have always used a "blend" of teaching approaches in order to provide as rich a learning environment as possible for our learners. What is new is the "expectation" of our learners to use technology in and out of the classroom as part of the learning process. Concerning the individual learner differences and classroom instruction, Lightbown and Spada (2013) also believe that teachers can help learners expand their repertoire of learning strategies and thus develop greater flexibility in their ways of approaching language learning. Thus, various instructional materials including videos, blogs, online forums and other digital tools provide students opportunities to practice the language outside the class.

Most of the researchers who have studied blended learning approach and its place in enhancing vocabulary knowledge listed a great number of positive effects. Zhang, Song and Burston (2011) examined the effectiveness of vocabulary learning via mobile phones and compared two groups of students at a Chinese university. While one group of students studied a selected list of vocabulary via text messages, the other group of students worked on the same list through paper material. When students' test results were compared, their findings revealed that

"students can learn vocabulary more effectively short-term via mobile phones than with paper material". Similarly, Khazaei & Dastjerdi (2011) made a comparative study on the impact of traditional and blended teaching on EFL learners' vocabulary acquisition. The study aimed to explore the application of SMS to the blended method of teaching L2 vocabulary. Students were evaluated on their recognition and recall of vocabulary items. The results revealed that the students who received the learning content through blended teaching approach had better test results than the group of students who received the learning content in the traditional way. Based on the research findings, they confirmed "the significant supplementary role of Mobile-Assisted Language Learning (MALL) in the teaching of new vocabulary items. Yigit et al. (2013) also used blended learning model to optimize learning in teaching Algorithm and Programming course in Computer Engineering Education in Süleyman Demirel University Computer Engineering Department. In their comparative study, blended learning is achieved through Learning Management System (LMS) of university. Evaluation was based on students' homework, midterm and final exam grades of the students. Results of the study showed in blended learning education, education was more effective; students' achievements were better than expected in comparison to traditional education, however; algorithmic thinking abilities of students who enrolled in the Algorithm and Programming Course in blended and traditional education were close.

To translate accurately and convey the meanings in the best way and to keep up with new technologies in their own field of study and possess a wide array of vocabulary knowledge, is the translator's duty. So, it is researcher's responsibility to analyze new technologies and if they are helpful, encourage translators to use these new technologies.

Translation Studies

A seminal paper in the development of the field as a distinct discipline was James S. Holmes's 'The name and nature of translation studies (Holmes, 2000). Holmes puts forward an overall framework, describing what translation studies covers. This framework has subsequently been presented by the leading Israeli translation scholar Gideon Toury as in Figure 1.

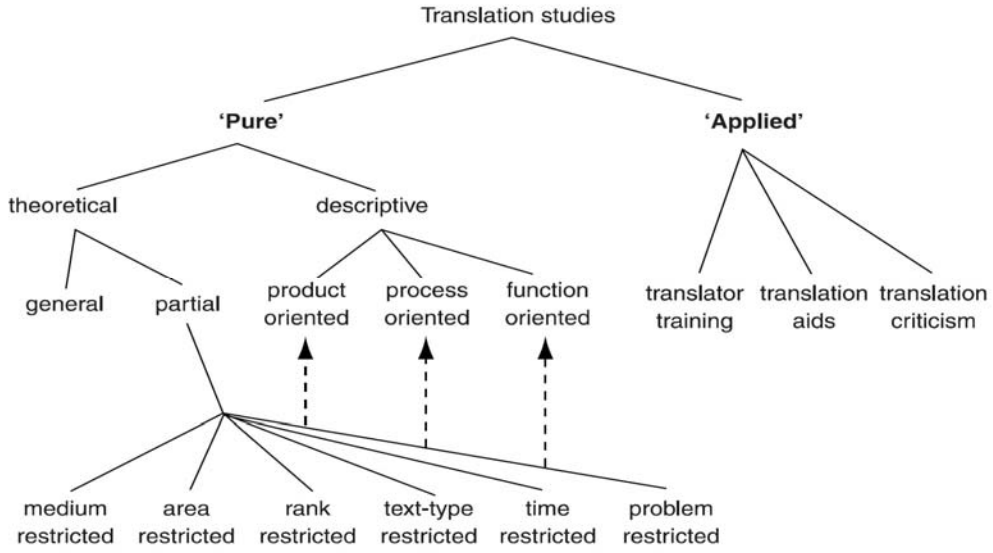

Figure1. Holme's map of translation studies

Translation

Translation can be defined as both a product and a process. It is better to have a brief explanation of translation and categories of translations. Translation is both a cognitive procedure which occurs in a human being's, the translator's head, and a social, cross-linguistic and cross-cultural practice (House, 2015). Roman Jackobson (Jackobson, 1959/2004), a Czech structuralist, categorize translation in three branches as follows:

1. Intralingual translation, or 'rewording': 'an interpretation of verbal signs by means of other signs of the same language';
2. Interlingual translation, or 'translation proper': 'an interpretation of verbal signs by means of some other language';
3. Intersemiotic translation, or 'transmutation': 'an interpretation of verbal signs by means of signs of non-verbal sign systems.

The Development of Translation Technology

Computer-aided or also called computer-assisted translation, CAT, is a kind of translation in which the translator uses computer software or programs to help him/her translate more fluently and better. There are four stages in developing the computer-aided translation or CAT. The first period was from 1967 to 1983, which is the period of germination. The second period or the period of steady growth was from 1984 to 1993. The third period was from 1993 to 2003 which is called the period of rapid growth, and from 2003 to 2013 is the period of global development (Sin-wai, 2015). Machine translation (MT) is a sub-field of computational linguistics (CL) or natural language processing (NLP) that investigates the use of software to translate text or speech from one natural language to another" (Wong, 2015). The major difference between MT and

CAT is in the process of translation. In MT, the whole translation is accomplished by the machine or computer and the product will be delivered to human or users without any human intervene. But on the other hand, in CAT the computers are just assistant and the translation will be done by the human.

Translation Memory Tools and SDL Trados Studio

"A 'translation memory' (TM) is a database of paired text segments, where Segment B is a translation of Segment A. Translators use TMs to 'remember' the content of past translations. TM programs comprise the prototypical function associated with so-called 'CAT' systems" (Melby & Wright, 2015). Translation memory tools are software packages which work in a separate area of word processing. There are also some TM tools which are bound to Microsoft Office tools such as Word. The main purpose of creating all kinds of TM tools is translating a unit of translation before it is needed to translate again. In this way, a translator only needs to decide whether the questioned translation is suitable for a new document or not. It should be considered that, contrary to MT, in TM tools human is intervening the process of translating. "The technologies used to achieve this are different. Some tools use a model of referencing the files of a previous project, the referencing model uses those previously translated files (original source language files and translated files) as the source for suggestions of new translations" (Zerfass). This model is well designed for projects that are continually updating, therefore small changes occur in the original text. The database model on the other hand stores all translations ever made in one database, independent of context, which is useful if the same or similar segments appear in different projects and document types.

In the present study, the researcher aims to analyze the effect of translation memory tools on learning new vocabularies utilizing specific software named SDL Trados studio. For many reasons, TM tools have become more popular worldwide. Hence, the researcher analyzes the usage of these software in the process of translation and whether they would help translators to expand their knowledge of vocabularies. In this research, the researcher tried to answer one question. The research question is as follows:

RQ. Does using TM tools have any statistical significant effect on the quality of learning new vocabularies?

The Definition of Vocabulary

At first, it seems necessary to provide a clear definition of the term vocabulary. Different definitions may be given for the term vocabulary regarding different viewpoints. However, one can generally define vocabulary as the knowledge of words and word meanings. Or someone else may define vocabulary as a list of words arranged in alphabetical order with their definitions. A word, in most linguistic analyses, is described as a set of properties, or features, each word is the combination of its meaning, register, association, collocation, grammatical behavior, written form (spelling), spoken form (pronunciation) and frequency. To master a word

is not only to learn its meaning but also to learn seven other aspects. All these properties are called word knowledge (Schmitt, 2000).

Schmitt (2000) says that word meaning consists of the link between the word and its referent, and the latter means the person, thing, action, and situation. The dictionary meaning of a word is the basic meaning. However, a word can have extra meanings in different texts. In addition, there are some associations between words. According to Aitchison (2003), there are four categories of associations. The first one is coordination: words cluster together on the same level of detail. For example: boxing, skateboarding, football are stored together, belonging to the group of sport, opposites also belong to this kind, for example: lazy and smart. The second one is super-ordination: some words cover other words which are subordinate to the upper ones. For example: when people mention the word animal, others can easily associate to cat, goat, horse, dog, and so on. The third one, synonymy: words having the same or similar meanings are stored together. For example, happy and glad, surprise and shock tend to appear together. The last one, collocation: some words are usually stored together to collocate each other. For example, black and white, salt water, bright red are usually matched together based on people's habit of actual use.

Vocabulary and its Importance in Language Learning

What Is Vocabulary? Throughout this paper I hope to draw the attention directly in thinking about English vocabulary and the teaching of it to students as a second or foreign language. It is important to delve into the reasons beyond English vocabulary weakness and why it is essential to empower student's ability to grasp more words in different techniques. The following are some weakness' reasons:

- Lacks the awareness to the objectives of learning vocabulary.
- Has a very limited experience of practicing conversation with native speaker.
- Has a serious problem in spelling.
- Lacks the motivation to learn the English Language.
- Lives in an environment where higher level vocabulary are not used.
- Has a Phobia of English language as a foreign language.
- Has a lower education level.
- Does not read much or has a reading problem.
- Has an auditory perception problem which makes it difficult to hear the subtle differences in words.
- Does not have a good understanding of the structure of language including parts of speech and word parts, prefixes, suffixes and word roots.

Students who are weak in vocabulary are forced to develop themselves but also good students need to build on their vocabulary at university. Students cannot develop their autonomy

alone, they should coordinate with their teachers in order to achieve the desired results (Hadad, 2016).

Brown and Payne (1994) identified five steps for learning vocabulary in a foreign language: 1- Having sources of encountering new words 2- Getting a clear image, either visual or auditory or both of the forms of the new words 3- Learning the meaning of the words 4- Making a strong memory connection between the forms and the meanings of the words 5- Using the words Brown (2007, p 132) describes strategies as "those specific attacks that we make on a given problem that vary considerably within each individual." Chamot (2005, p.112) defines strategies as procedures that facilitate a learning task." She believes that strategies are conscious and goal driven. According to Naveh et al., (2011), "A vocabulary strategy is a special instructional tool and way of going about directly or explicitly as well as the independent word learning skills required to learn words independently." VLS constitute knowledge about what students do to find out the meaning of new words, retain them in long-term memory, recall them when needed in comprehension, and use them in language production (Catalan, 2003). It has been argued that all language learners consciously or unconsciously employ some form of strategies in learning the vocabulary, but successful L2 learners engage in more purposeful language learning and use more strategies than the unsuccessful learners (Hong-Nam Leavall, 2006). Cohen (1998) states that: "Strategies can be very different in nature, ranging from planning the organization of one's learning (a meta cognitive learning strategy) through using mnemonic devices (methods used to help one remember information that is otherwise difficult to recall) to learn vocabulary (cognitive learning strategies) and rehearsing what one expects to say (a performance strategy) to bolstering one's self-confidence for a language task by means of "self-talk" (an effective strategy). These strategies as Oxford and Scarcella (1994) point out help the learners become independent of teachers and take an active role in their own learning inside and outside of the classroom. Leeke and Shaw (2000) emphasize that it is important that the learners have effective strategies in the area of vocabulary. By giving them control the learners become more interested in choosing the best ways of learning the language. Gu and Johnson (1996) believe that these strategies lead to increased retentions of the new vocabulary and increased availability of these items for active use. According to Jones (2006) taxonomy of language classification strategies are classified under eight parts as dictionary, guessing, study preferences, memory, autonomy, note-taking selective attention and social strategies.

According to Nation (2001), vocabulary acquisition includes three processes, namely noticing, retrieval, and creative (generative) use. An explanation of each follows: The process of Noticing involves learner's detection of a given word and marking it as an unknown. A crucial point, however, is that the learner at the same time realizes she/he has come across the word before, but it was used differently, and most importantly the learner becomes familiarized with a new context, as well as he/she wishes to learn a particular word. Moreover, the learner will tend to decontextualize the word the moment she/he notices it, which in turn will provide foundation for better understanding of the word. The process of decontextualization takes place either consciously or subconsciously in a variety of ways. For instance, it occurs while listening or

reading exercises, when the teacher highlights a particular word, while negotiating meaning in speaking exercises, or when the teacher provides learners with an explanation of the word, be it translation, giving a synonym, or target language definition.

While the noticing directs the learner toward learning the word, the retrieval, the second process of vocabulary acquisition distinguished by Nation, reinforces the meaning of the word in the learner's mind. The more frequent the retrieval of a particular item in a learning process, the greater the chances that the item will strike deeper in the learner's memory. Thus, repetition and retrieval of the word extend its meaning, or definition, and repetitive exposure to and use of it will lead the learner to understanding of each meaning of the word he/she encounters. Nevertheless, the span of time between encounters cannot be too long. If the learner is not able to recall encountering the word in the past, she/he finds herself/himself at the initial stage of the learning process. Nation (2001) states that it is very useful to try to estimate how much listening and reading a learner would need to be doing per week in order for incidental receptive vocabulary learning to proceed in an effective way .On average learners would need to listen to stories at least three times a week for about fifteen minutes each time. They would need to read about one graded reader every two weeks. The last process of vocabulary acquisition in Nation's classification is that of the creative or generative use. It takes place when "previously met words are subsequently met or used in ways that differ from the previous meeting with the word" (Nation, 2001). Those new encounters push learners toward reconceptualization of their knowledge of these words.

Method

Design

The design of the research can be categorized as quasi-experimental. According to the definitions, it is experimental due to the reason that the researcher manipulates one variable, and control the rest of the variables. A quasi-experiment is an empirical study used to estimate the causal impact of an intervention on its target population without random assignment.

Participants

The participants in this study were freelance translators. Their ages range from 20 to 40 and they were juniors. There were both male and female translators. There were 68 students and after a placement test, 50 students were selected. TM software was introduced to one group (experimental group) and the other group (control group) translated the texts without using any specific computer assistance. These students were only allowed to use dictionaries in the process of translation. Researcher provided the experimental group with the 30 days trial version of SDL Trados Studio. These students were selected through convenient sampling.

Instruments and Materials

In order to accomplish the objective of the present study, the researcher will use a specific type of instrument. There are many kinds of TM tools in the market, but the researcher used SDL

Trados Studio 2017 in this research. As the developers of this software explain "SDL Trados is a computer-assisted translation software suite, originally developed by the German company Trados GmbH and currently available from SDL plc, a provider of customer experience cloud solutions. It is considered the market-leader in providing translation software solutions across the entire translation supply chain, including freelance translators, language service providers, corporate language departments and academic institutions"(SDL.com).

One of the advantages of SDL Trados Studio is that it is a separate program and it works independently. It does not need any other Microsoft Office tools and it works on its own. It supports lots of file formats, has all the functionality you need from a CAT-tool, and it is fairly easy to learn to work with. But on the other hand, it is an expensive software and some features are available only in professional version, which is the most expensive of all, and it is hardware demanding. It works best on computers with multi-core.

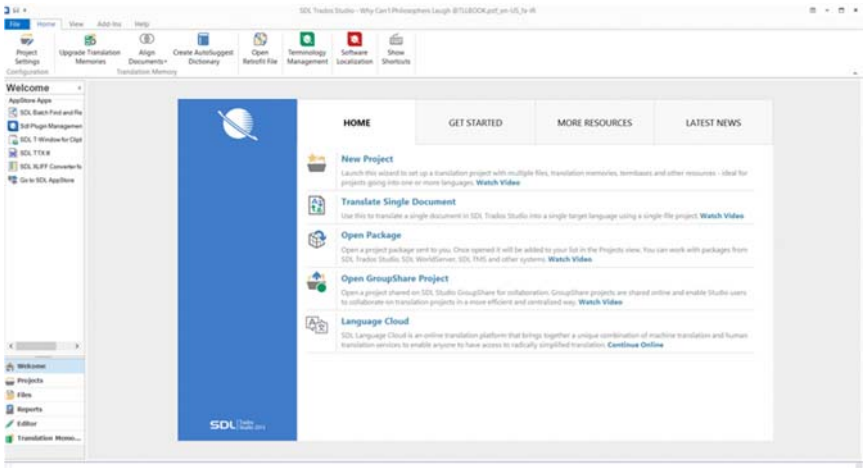

Figure 2. SDL homepage

Texts for Translation

In order to translate single-file documents, 10 similar texts will be given to both groups. These texts will range in the size of paragraphs and subjects. The genre of the texts are daily subjects and the researcher tried to select these texts among newspapers. The degree of the difficulty of the texts also ranges from hard to easy. It is tried to choose these texts from news agencies such as Telegraph and so on. These sources chose by the researcher to increase the authenticity of texts.

Selection of Participants

A placement test was given to translators and analyzed by two raters. This was due to the reason that to make sure the selected participants had equal translating skills. Then the researcher selected 50 out of 68 translators. These 50 participants were divided into two groups of 25 as control and experimental groups.

Treatment

The researcher chose one group to teach them how to work with TM tools. He gave them the essential instructions from the first step to the final step in which they create their own translation memory and the product of translation and asked them to translate the given texts using this software. These students were able to contact the researcher through E-mail or phone call and ask their questions about the utilized software or texts for translation. But, in the other group (control group) they translate in the same way as the students do translation in normal classes.

Posttest

In the last step, another test was given to the students and analyzed by two translation raters with same checklists. The total scores of all students compared and rated, then depicted in the diagram.

Data analysis and discussion

Homogeneity Test (OPT)

68 freelance translators took the Oxford Placement Test (OPT), in order to be homogenized as the eligible participants in the present study. After test administration and analyzing the results, those who got X ± 1 SD, were selected as the participants of the study. Therefore, 50 students who scored between 35 and 46 were selected for the study. Table 1 shows descriptive statistics of the placement test.

Table 1
Descriptive Statistics of OPT

	N	Mean	Std. Deviation
OPT	68	40.65	5.64

Vocabulary Pretest

All 50 participants were randomly divided into two groups, and before starting the treatment (using TM tool), they all took part in a vocabulary test in order to check their knowledge of vocabulary. The collected translation data was scored by two raters in order to have more reliable scores.

Descriptive Statistics of Scores

The descriptive statistics related to the obtained scores on the instruments appear below in Table2**.**

Table 2

Descriptive Statistics: Experimental, Control

Variable	*N*	*N'*	*Mean*	*SE Mean*	*St Dev*	*Variance*	*Coervar*	*Minimum*	*Q1*	*Median*
Experimental	*25*	*0*	*37.000*	*0.735*	*3.674*	*13.500*	*9.93*	*31.000*	*35.000*	*36.000*
Control	*25*	*0*	*41.880*	*0.912*	*4.558*	*20.777*	*10.88*	*35.000*	*38.000*	*40.000*

Variable	*Q3*	*Maximum*
Experimental	*39.500*	*47.000*
Control	*47.000*	*49.000*

Investigating the Research Question

The question of the present study was to investigate the effect of TM tools on the quality of learning new vocabularies. After analyzing the scores of both groups, the following results were obtained.

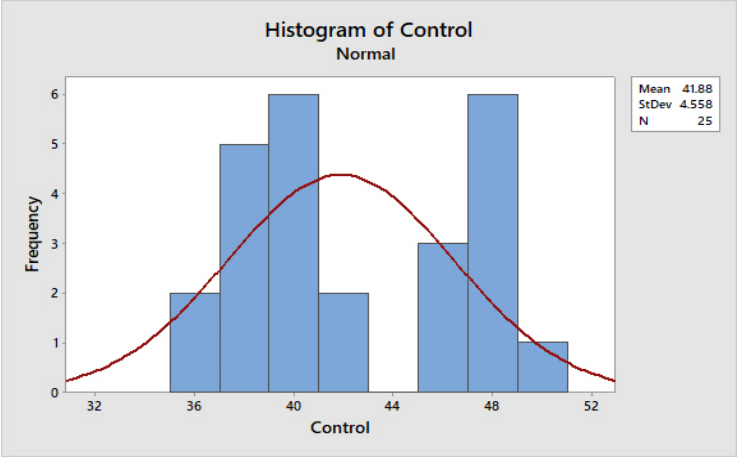

Figure 3. Normal histogram of control group

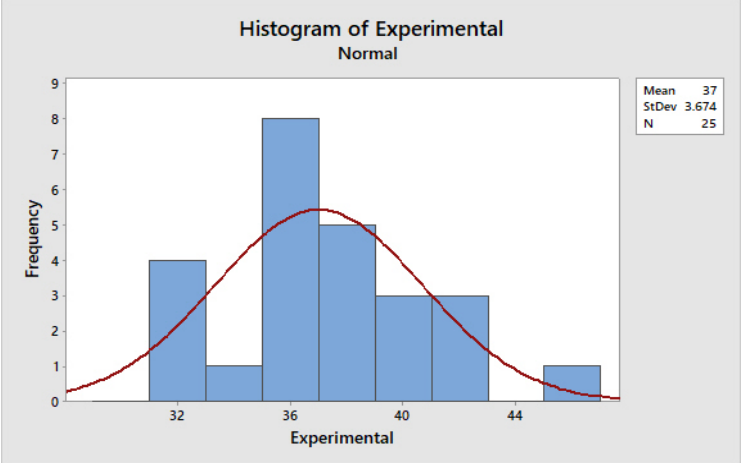

Figure 4. Normal histogram of experimental group

According to the above charts, it can be inferred that the average scores of control group were higher than experimental group.

Summary of Reports

In the following tables, summary of findings for both groups are presented. As it can be seen and has stated earlier, translators in control group outperform the participants of the experimental group. As a result, it can be concluded that translating in company with paper dictionary and searching for the meanings of the vocabularies boost the process of learning new words and terms.

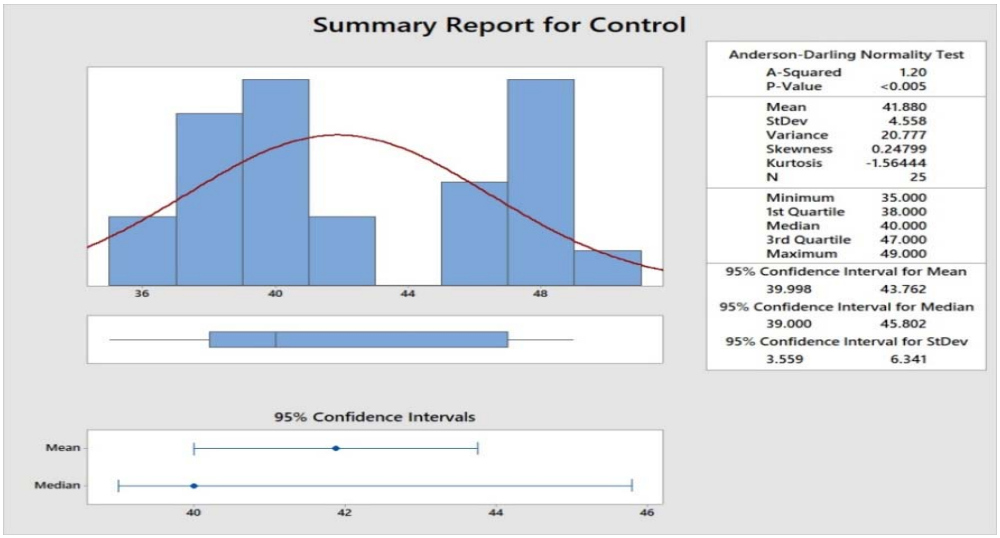

Figure 5. Summary of reports for control group

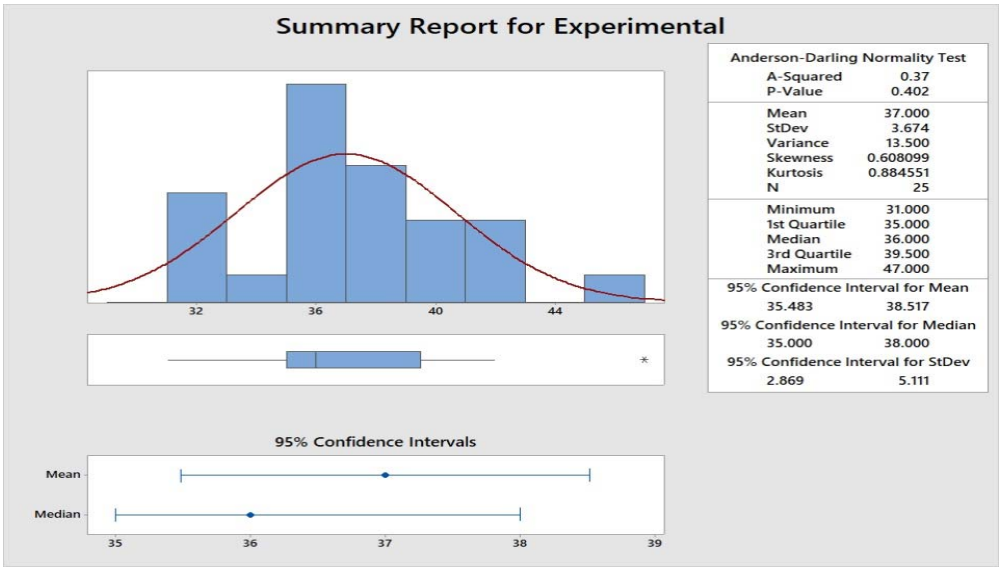

Figure 6. Summary of reports for experimental group

Discussion and Implications

According to the findings of this study, it can be inferred that TM tools have adverse effect on learning and memorizing new vocabularies. The figures illustrate the fact that those translators who did not use any specialized tools during the process of translation, scored higher in vocabulary test in contrary to those who utilized TM tools and especial software for translating. Findings of this study can also help teachers to design new courses for translation studies. These courses can include topics related to the new developments and technologies such as machine translation and TM tools.

It is also worthy to note that the majority of participants in experimental group claimed that using TM tools during translation gave them a sense of motivation and encouraged them to translate. It has been stated by them that the date storage of TM tools soothed the process of translation and accelerate the translation process.

According to the findings of this research, TM tools also help translators create their own storage for different kinds of texts. Using TM tools will make translators to type instead of writing. This issue can help them to create more organized translations and arrange their texts in a more arranged form.

Using TM tools is bound to use computers. It should be considered that in most places such as schools, companies, translation institutes and even homes, computers have significant role in everyday life. So, translating with computer motivates translators and students. It is noticeable that, using computer during translation can give translators access to different websites and online dictionaries.

Teaching translation studies is not only about teaching theories of translation and introducing thinkers of this field. Of course having knowledge of translation studies can help translators to improve their skill, but teachers have a significant role in teaching students how to translate. Using TM tools can motivate students to translate. In another words, using new technologies in a computerized world will motivate students to work harder.

Findings of this study can also help teachers to design new courses for translation studies. These courses can include topics related to the new developments and technologies such as machine translation and TM tools.

Suggestion for Further Research

SDL Trados Studio is a new version of machine translation. The difference between SDL and other common machine translators is in using intelligence in SDL. Translators themselves are translating in SDL Trados but in other machine translators there is no interference of human. This issue can be the reason which leads to more coherent translations. Scholars can investigate the effect of artificial intelligence in producing more reliable translations.

Another field of investigation can be utilizing options of SDL Trados studio. For example, this software can also investigate the quality of translations. There is an option in which teachers and translators can modify a model for scoring products of translations. Further researches can be done on the advantages and disadvantages of machine scoring. As SDL Trados and many other

TM tools and machine translation software are newly introduced to this field by companies and scholars there can be many other field of investigations.

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