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The Effect of the Translation Technologies on the Critical Thinking of the Students of the Translation Studies

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Abstract

In this article the possible effects of the translation technologies on the critical thinking and translation ability of the students of the Translation Studies would be studied through a pre-experimental method of research. The participants of this research were thirty one Iranian senior Translation Studies students at the age group of 20-26 who were selected based on their age, educational level and English knowledge. The participants took part in a researcher made translation test and a standard test of critical thinking twice; once at the beginning of the training course and then at the end of the course. During 20 sessions, the participants learned and practiced the most common translation technologies and tools in the universities computer center.

The findings of this research with the 99 percent confidence showed that using the translation technologies helped students to develop not only their critical thinking ability but also their translation competence and their translation ability as well.

Keywords: Critical thinking; translation competence; Translation technologies.

INTRODUCTION

Developing the critical thinking is one of the most central goals at the academic level and one of its most valued outcomes. According to Moon (2008), critical thinking is the ability to consider a range of information derived from many different sources, to process this information in a creative and logical manner, challenging it, analyzing it and arriving at considered conclusions which can be defended and justified. According to Scriven and Paul (1987) critical thinking is not a matter of accumulating information. A critical thinker is able to deduce consequences from what he knows, and he knows how to make use of information to solve problems, and to seek relevant sources of information to inform himself.

Based on Kiraly's cognitive model, the translator's mind is "an information-processing system in which a translation comes from the interaction of intuitive and controlled processes using linguistic and extralinguistic information" (Kiraly 1995).

Wilss (1996) argues that problem-solving and decision-making are the most relevant elements in translation. He takes a cognitive psy

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chological perspective to view translation as a decision-making process involving knowledge-based intelligent activities. With regard to above mentioned explanations, critical thinking is very important in translation because it helps the translators to have a better choice of equivalences and hence produce a better translation.

On the other hand, translation technologies like Electronic Dictionaries, Proofreading Tools and Machine translation system play an important role in translation activities and are considered as an essential and inseparable aid of modern era translation.

As Paul (1990) put it, there are three categories of critical thinkers as critical readers, critical writers, and critical listeners. In Paul's point of view, critical readers go through the literature as a way to experience the writer's world, experience and point of view. In this case, critical readers do not simply traverse through the pages of a book. They question, challenge, interpret, mix and absorb what they read. Critical writers find it challenging to put their ideas and experiences into words. They find a parallel need to construct their own meanings as well as the probable meanings of their readers. Becoming a critical listener is the hardest part of critical thinking. If a person can get the nature of critical reading and writing, s/he can get the nature of critical listening. Moreover, all the challenges of reading and writing exist for a critical listener.

On the other hand, over the past years there has been dramatic advances in the field of translation technologies. These technologies are supposed to help the translators to have a better and even though the right choice when dealing with the translation process in other to provide us a better translation products.

The purpose of the present article is to show the possible effects of the translation technologies on the Translation Studies Students' critical thinking abilities and to clarify if using the translation technologies have any significant effect on the translation ability of them.

The researchers supposed that as the critical thinking main goal is enable one to make the best and right decision and translation technologies also developed to help the translator to have a better choice in translation process so there probably must be a relationship between them.

The researchers believed that the finding of the present study could be helpful for translators, translation studies students and translation studies instructors.

In the 1980's translation researchers like Krings (1986) and Lörscher (1989) adapted the method of introspective verbal commenting from the field of cognitive psychology to study translation processes. Their analyses of the resulting think-aloud protocols allowed them to make inferences about translators' cognitive processes and initiated a focus shift from product research to process research. Since then, technological innovations like computer screen recording, key-stroke logging and eye-tracking has enabled automated gathering of data and its statistical analysis .this definitely put the actors, i.e. the translators, their actions and thought processes at the center of attention (Gopferich,2007).

Given that the act of translating is a decision-making and a problem-solving process (Pym 2003), translation problems are seen as "reliable indicators of progress in acquiring translation competence [since they] may appear at any stage of the translation process; [they are] observable, […] and, in solving translation problems, subjects certainly show their ability to use translation strategies, which is a relevant element of translation competence" (Orozco and Hurtado Albir 2002).

Demand for translation services has increased considerably over the past decade or so, exacerbated by a number of factors, including the growing emphasis in business on globalization, the advent of the World Wide Web as an international marketing tool, the rise of the software localization industry, and the increasing opportunities for international trade. In Europe, the forging of closer trading relationships between countries, and more recently, the enlargement of the European Union, have high-

lighted awareness of the need for translators, and again fuelled demand for their services. In view of this growing requirement for translation services, translators today are under pressure to produce high-quality translations in ever shorter time periods (Andrés Lange and Bennett, 2000: 203). Exposure to a range of translation technologies and a thorough grounding in the concepts on which these technologies rely would also help raise awareness of the capabilities of such tools, increase familiarity with their functionality and key features, and enable trainees to make informed choices about the suitability of each tool for a particular translation task. (Fulford and Granell- Zafra, 2005)

González Davies in her article forthcoming (2004) presented the following things that a translator should know: stated that a translator is expected to have these knowledge, abilities and skills which could be considered as the translator's competence:

a) Language Work: constant acquisition and improvement of the source language/s and target language/s, awareness of the existence and pitfalls of interferences.

b) Encyclopedic Knowledge: introduction to subject matter related to different disciplines, cultural knowledge , awareness of conventions of presentation in both the source and the target languages, and terminology management.

c) Transference skills : problem-spotting and problem-solving, creativity and self-confidence as translators, awareness and use of strategies and procedures, ability to decide on degrees of fidelity according to translation assignment and text function, learning to meet client's expectations, ability to translate with speed, and quality, overcoming constraints, practicing direct and reverse translation to meet real market demands, self and peer evaluation skills.

d) Resourcing skills: paper, electronic, and human.

e) Computer skills: familiarization with a translator's workbench, computer-assisted translation, human assisted automatic translation, acquisition of electronic resourcing skills: databases and access to digital sources, unidirectional (e.g. Web pages) and bi-directional (e.g. e-mail) distance communication.

f) Professional skills: awareness of translator's rights, contracts, payment and familiarization with different editing processes and as much real life practice as possible, interrelating with the clients.

Critical thinking is difficult to define and even more difficult to measure (Abrami, et.al, 2008). One of the definitions of critical thinking stated by Epas is "critical thinking is self-directed thinking and a self-monitored process that requires effective problem solving abilities" (p. 4, as cited in Colby, 2009). The concept is that good critical thinking is not an innate or natural ability for most students but that they can be taught through effective pedagogical methods to learn to think critically. Students need the ability to question, reason, and consider alternative perspectives but also to evaluate their own biases, values, claims, and belief systems (Huff, 2000, cited in Anderson, 2011).

Critical thinking is the use of those cognitive skills or strategies that increase the probability of a desirable outcome. It is used to describe thinking that is purposeful, reasoned, and goal directed- the kind of thinking involved in solving problems, formulating inferences, calculating likelihoods, and making decisions when the

thinker is using skills that are thoughtful and effective for the particular context and type of thinking task. Other definitions include the notions that critical thinking is the formation of logical inferences (Simon & Kaplan, 1989), the development of cohesive and logical reasoning patterns (Stahl & Stahl, 1991), and careful and deliberate determination of whether to accept, reject, or suspend judgment (Moor & Parker, 1994).

Elder and Paul (1994) postulate that critical thinking is the ability of thinkers to take charge of their own thinking and develop sound criteria and standards for analyzing and assessing their own thinking. Maiorana (1992) mentions that the purpose of critical thinking is to achieve understanding, evaluate viewpoints, and solve problems.

"We understand critical thinking to be purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological, criterio-logical, or contextual considerations upon which that judgment is based. Critical thinking is essential as a tool of inquiry. (Facione, 1990)

Watson and Glaser (1980) identified six critical thinking abilities, specifying that critical thinkers define a problem, select pertinent information for the solution, recognize assumptions, formulate hypotheses, draw conclusions and judge the validity of inferences.

Critical Thinking can be understood as a way of becoming aware of and taking control of the thinking processes itself in order to increase the efficiency of thinking to make it more rational, clear, accurate, and consistent. Critical Thinking serves for evidence in questions supported by arguments, interpretation, and final decisions. (Hasse, 2010)

The profession of translation is undergoing major changes, one of them being the introduction and widespread use of computerized translation aids. Nowadays there is a wide range of information and communication technologies (ICT) available to translators today, including both general-purpose software applications a management and translation memory systems.

Critical thinking is a process through which the critical thinker can think, analyze and make the best decision or come up with the right solution and any translator needs to be a good critical thinker about making the final decision of his/her selection of words equivalences or even though his/her creation of new sentences in the target language. On the other hand, different translation technologies have been introduced to help the translators and translation students in their making decision about the equivalences and sentences in order to create a better translation.

But despite the importance of the critical thinking in education, translation courses and activities and the application of various translation technologies in the worldwide little investigations have been done in this regard. In addition far too little attention has been paid to the relationship between critical thinking and translation technologies and the effects of translation technologies on critical thinking.

For the researcher as a translator and Translation Studies student, the question was whether using the translation technologies have any significant effect on the critical thinking of the Translation Studies students or not. So in this study it have been tried to investigate the possible effects of translation technologies on Translation Studies students' critical thinking.

Research Questions

The main question addressed in this paper was the first question:

Q1: "Does using the translation technologies have any significant effect on the critical thinking skill of Translation Studies students'?

The second question was also important and put forwarded the usability of the translation technologies in developing translation students' translation performance.

Q2:" Does using the translation technologies have any significant effect on the translation ability of Translation Studies students'?"

Research Hypotheses

In order to deal with the aforementioned research questions, the following hypotheses are formulated:

H01: "Using the translation technologies has no effect on the critical thinking skill of the Translation Studies students'."

H02:" using the translation technologies has no effect on the translation ability of Translation Studies students."

METHODOLOGY

Participants

In this research thirty one Iranian senior Translation Studies students of the Islamic Azad University- Central Tehran branch and Allameh Mohaddes Nouri University (Non-governmenta l, Nonprofit) at the age group of 20-26 were the main participants who were selected based on their age, educational level and English knowledge in a homogenizing phase.

In this study two types of participants were involved:

The first type of the participants of the present study were 31 Iranian senior Translation Studies students of the Islamic Azad University- Central Tehran branch and Allameh Mohaddes Nouri University(Non-governmental, Nonprofit) who were selected after homogenizing phase by the researchers. Twenty two of the subjects were female and nine of them were male. They were the senior students of bachelor degree with the average age of the 18 to 26 years old and had passed the translation courses in their universities.

To avoid any subjectivity in measuring the translation of the students in pretest and posttest, the researchers took advantage of using the judgment of another rater who was an experienced translator who had a Master degree in English translation studies.

nstruments

In order to fulfill the purpose of this study, the researchers had to use different instruments in cluding different tests for measuring the participants'language abilities, various online or electronic soft wares and standard test of critical thinking which will be described in order:

Tests

In order to perform this investigation; the researchers had to prepare three types of tests as follow:

English Language comprehension test

Since the researchers was after measuring the students translation ability only one part of the TOEFL test was selected for homogenizing the participants of this research which was "the reading comprehension and vocabulary" part. So reading comprehension test containing 18 items were selected from the standard TOEFL tests. (Appendix 1-a)

The California Critical Thinking Skills Test (CCTST)

In order to measure the students' critical thinking ability, the researchers used the standardized Persian version of the California Critical Thinking Skills Test (Mahboobi, 2012).

The Researchers Made Translation Pre-Test

In order to measure the participants' translation ability at the beginning of the training period, the researchers under the guidance of her advisor of this research chose an English text containing 6 paragraphs to be translated in 45 minutes without using any English instrument, however the Persian equivalents of some words that were supposed to be difficult for participants were added at the end of the text.

The Researchers Made Translation Post -Test

In order to evaluate their translation ability at the end of the training period, they were asked to translate a five paragraph text in 60 minutes using all the translation technologies and tools that they were taught during the period.

The participants' translation proficiency and competence were evaluated as a pretest and posttest at the beginning and end of the training period. For the pretest an English text containing 6

paragraphs
was chosen by the researchers. Then the participants were asked to translate it from English to Persian in 45 minutes. In this phase the students were not allowed to use any dictionary and the Persian equivalents of the eight words that were supposed to be difficult for participants were added at the end of the text by the researchers.

The participants also passed a translation posttest in order to evaluate their translation proficiency and competence at the period. They were asked to translate a five paragraph text in 60 minutes using all the translation technologies and tools that they were taught during the period.

Two raters including the researchers evaluated the translated texts using the Holistic Method C of Waddington's (2001) Translation Quality Assessment Rubric.

Translation Technologies

To conduct this investigation, the researchers had to train the participants the way of using eight translation technology as other instruments of this research as follows:

Computer and Internet

Computer and internet were the most important tools in this project. The training period and classes were conducted in the universities' computer centers equipped with computers, internet and required software. Some required software were provided to the students to install on their computers, laptops, Tables or Mobile Phone.

Soft wares

Microsoft Office Word (2007/2011)

A full-featured word processing program that the translators should know how to use it. In the first session the students learnt how to use it practically. The researchers also explained the most important options of the software that a translator needs to know. In addition to typing as the most common use of the Word program the researchers focused on the following parts of the program: Synonyms, Proofreading, word count, Spelling grammar, References, Insert and Translate.

Electronic Dictionaries

The most common electronic dictionaries and encyclopedias were explained by the researchers and the students knew how to use them online or to install a use the required software. The Babylon dictionary delivered to the students to install on their computers and laptops and they were asked to use it for the translations during the training period if they feel need to look up at dictionary for a new word.

Proofreaders

As any translators needs to proofread his/her work in order to provide the final version of his/her translation and correct the probable error and mistake in grammar or punctuation, the researchers explained the proofreading tools to the students with focusing on the Word proofreading tool and Stylewriter software. The Stylwriter were provided to the all students as a compact disk.

Machine Translation

The use, advantage and disadvantage of the Machine Translation were discussed at class. The students started to work with the Google Translate as the most familiar and common used machine translation. Some of the online machine translation and machine translation programs were discussed at class and the students were asked to translate some texts.

Wordsmith and Multiterm as two most common tools of the Idiom translation were explained to the students by the researchers.

Translation Memories

SDL Trados, Wordfast and Omega as two most common translation memory program were explained in class by the researchers. The use and advantage of the translation memories tools in the large translation project and companies were also explained by the researchers.

Databases

Online and offline data bases like Google Scholar and Google books were explained to the students

and they knew how to use them practically. They also knew how to make a private and online database like SkyDrive (One Drive).

Search Engines

Different search engines like Google, AltaVista, yahoo and others and their role and position in the process of translation especially in search and translation process as a translation method when a translator have to conflict with an unknown and challenging word or expression were explained to the students.

Subtitle Translation

Subtitle Translation Wizard, Visual Subsync as the samples of the film subtitle program were discussed at class. The students also were asked to read their translations after editing to compare the new translation with other students.

PROCEDURE

To achieve the purpose of this study, the following steps were taken during the research process: The data collection procedure went through various steps. This procedure included selecting the participants and homogenizing them, preparing and administering the translation pretest and translation posttest, twice taking the Critical Thinking Skills Test and analyzing the data in the following way.

1. to choose the participants, after taking the permission of the university authorities, the researchers invited the university students to fill the forms (appendix1) and among the volunteers just those who were the students of the last term and they were from 18 to 26 age were invited to take part in general language exam consist of reading comprehension and vocabulary tests.
2. Thirty-one students who could gain within the range of one SD above and below the mean ($\bar{x}$) were selected as the participants of this research.
3. At the first session the participants were asked to answer the 34 questions of the California Critical Thinking Skills Test (CCTST) in 45 minutes.
4. At the beginning of the course, the participants were asked to translate the pre-test in 45 minutes. In this phase the students were not allowed to use any dictionary and the Persian equivalents of the eight words that were supposed to be difficult for participants were added at the end of the text by the researchers. The translations were evaluated by two raters using the Holistic Method C of Waddington's (2001) Translation Quality Assessment Rubric.
5. The researchers, in the universities computer centers (Site), in 20 sessions, introduced some of the most common translation technologies and tools to the participants and then they were asked to translate some texts from English to Persian and Persian to English using the technologies and tools they were thought. The translation technologies were available as software or online for all participants. (Appendix 2-a)
6. In the last session of the class, the participants' translation proficiency was evaluated through the post test of translation in 60 minutes using all the translation technologies and tools that they were taught during the period. The translations were evaluated by two raters using the Holistic Method C of Waddington's (2001) Translation Quality Assessment Rubric.
7. Their critical thinking skills were also evaluated for the second time by using the same Persian version of the California Critical Thinking Skills Test (CCTST) in the 45 minutes.
8. Using the SPSS software all the obtained data was analyzed.

RESULTS

The data were collected and then processed in the response to the research questions of the present study. The findings of descriptive statistics calcu-

lated and then the results of the inferential statistics with the interpretations were used. The descriptive characteristics of variables such as mean, Standard deviation and minimum and maximum value were analyzed using the main indices and dispersion statistics. In the inferential statistics of the hypothesis of the research were tested using the statistical processes. The analysis was done using the SPSS21 software.

Demographic Profile of the Participants

The demographic profile of the thirty-one participants of this research was classified based on their age and their educational status.

In the following table the frequency and percentage of the participants based on their age along with the representational bar graph is presented in table (4-1) and figure (4-1).

Table 4-1
Frequency distribution of the sample based on the samples ages

Age	Frequency	Percent
20.00	3	9.7
21.00	10	32.3
22.00	5	16.1
23.00	8	25.8
24.00	1	3.2
25.00	3	9.7
26.00	1	3.2
Total	31	100.0

As it is showed in the Table 4-1 among the 31 total numbers of the samples most of the participants were 21 or 23 years old, in general they were almost in the same range.

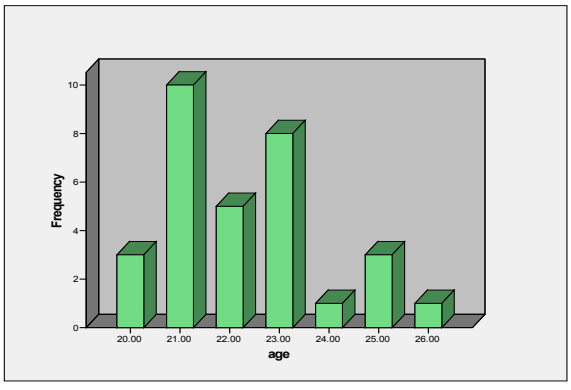

Figure 4-1Bar-graph of the frequency distribution of the samples based on samples ages

Table 4-2
Frequency distribution of the sample based on their educational status

Educational status	Frequency	Percent
6th semester	21	67.7
7th semester	7	22.6
8th semester	1	3.2
Under graduate	1	3.2
graduated	1	3.2
Total	31	100.0

As it is showed in the Table 4-2 among the total 31 samples of the research, 67/7% was in the 6th semester, 22/6% was in the 7th semester, 3/2% was in the 8th semester and 3/2% was graduated.

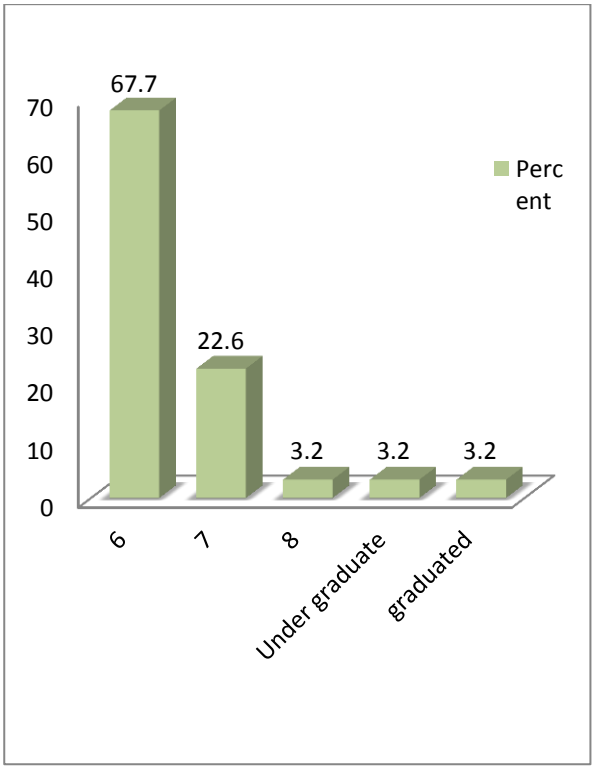

Figure 4-2 Bar- graph of the frequency distribution of the samples based on samples semester

Frequency and Percentage of the researchers made tests . In this section the frequency, percentage and the distribution of the research variables would be presented.

Frequency and Percentage of the General English

Table 4-3

Frequency and percentage of the General English

General English		
score	freq.	percent
3.6	2	6.5
4.5	3	9.7
5.4	3	9.7
6.3	7	22.6
7.2	5	16.1
8.1	9	29
9	1	3.2
9.9	1	3.2

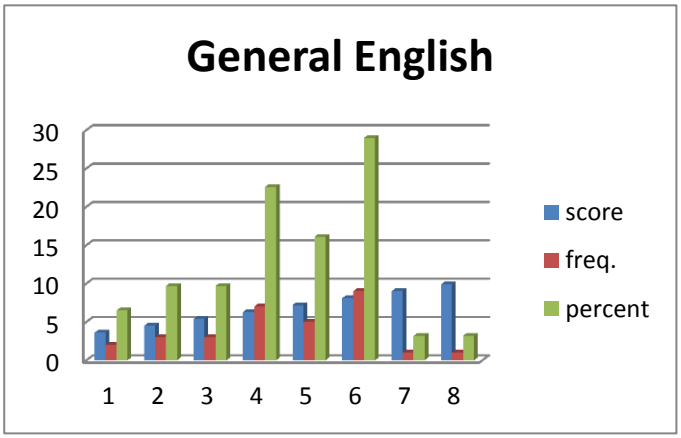

Figure 4-3:bar-graph of the frequency and percentage of the General English

Frequency and percentage of the Pretest

Table 4-4

Frequency and percentage of the pre-translation Eng

pre translation		
score	freq.	percent
3	1	3.2
4	2	6.5
4.25	1	3.2
4.5	4	12.9
4.75	1	3.2
5.25	2	6.5
5.5	3	9.7
5.75	3	9.7
6	1	3.2
6.25	3	9.7
6.5	3	9.7
6.75	1	3.2
7	2	6.5
7.25	1	3.2
7.5	2	6.5
7.75	1	3.2

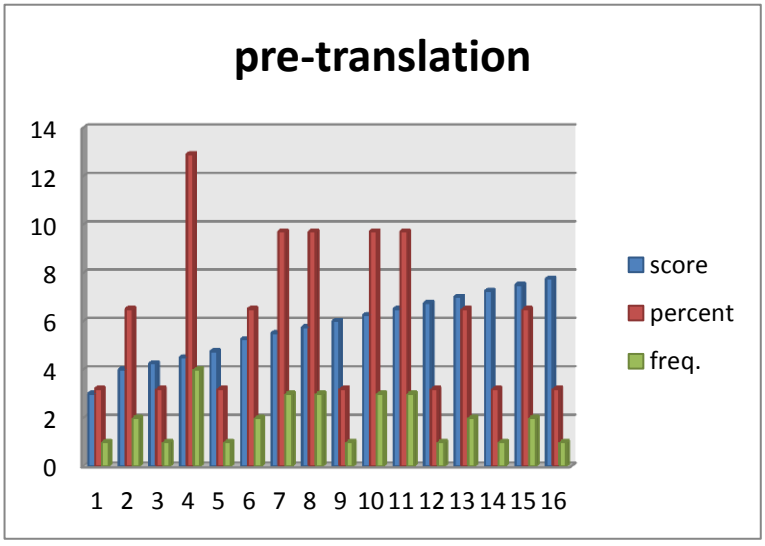

Figure4-4. bar-graph of the frequency and percentage of the pre translation

Frequency and percentage of the post-test

Table 4-5

Frequency and percentage of the post-translation English

post translation		
score	freq.	percent
5.75	2	6.5
6	1	3.2
6.5	2	6.5
6.75	3	9.7
7	1	3.2
7.25	2	6.5
7.5	6	19.4
7.75	2	6.5
8	4	12.9
8.25	4	12.9
8.75	2	6.5
9	2	6.5

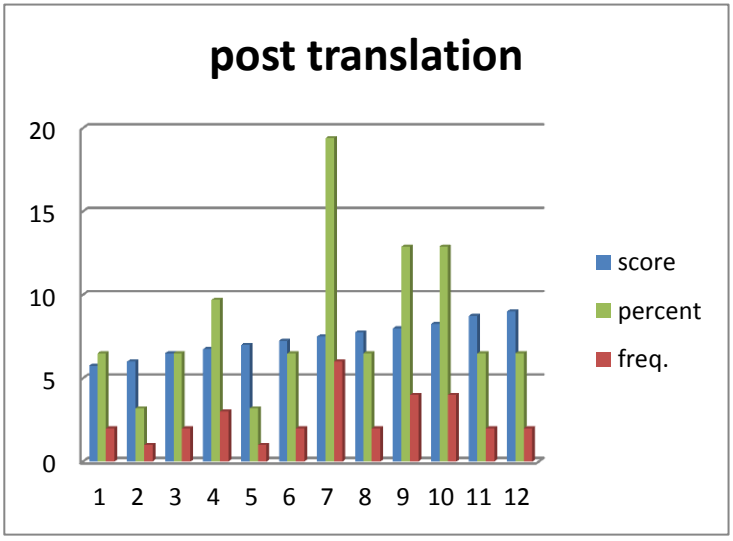

Figure4-5. bar-graph of the frequency and percentage of the post translation

Descriptive Statistics

In this section, the descriptive statistics of the research variables would be presented. First the reliability of the critical thinking test was calculated.

Table 4-6

Reliability of the researchers made test

Researchers made tests	Cronbach's Alpha	N of Items
General English	0.88	31
Pre translation	0.86	31
Post translation	0.77	31

Descriptive Statistics of the Researchers Made Tests

In the following table the central tendency and the degree of the dispersions of the participants scores in each researchers made tests is presented.

Table 4-7

Descriptive statistics of the researchers made tests

Test	N	Mean	Std. Deviation	Std. Error Mean
Pre translation	31	5.71	1.19	0.821
Post translation	31	7.52	0.88	0.821
General English	31	6.73	1.57	0.821

As it can be seen the mean of the participants' scores after the treatment in the posttest is higher and the standard deviation is lowerwhich indicates the progress of the students in developing their translation competence.

Descriptive Statistics of the Standard Test of Critical Thinking at the Beginning and End of the Treatment

First the reliability of the critical thinking test was calculated using Cronbach's Alpha for 34 items and the amount of 0.892 was achieved.

Since the amount was acceptable the researchers went through the next step.

Table 4-8
Descriptive statistics of the research variables scores'

variable	Mean	N	Std. Deviation	Std. Error Mean
Pre Inference	2.0645	31	1.12355	.20180
Post Inference	4.4516	31	1.67010	.29996
Pre Analysis	2.9677	31	1.13970	.20470
Post Analysis	4.1935	31	1.19497	.21462
Pre lEvaluation	3.2903	31	2.05254	.36865
Post lEvaluation	6.4194	31	2.41901	.43447
critical thinking pre test	8.3226	31	2.82119	.50670
critical thinking post test	15.0323	31	3.94533	.70860

As it would be inferred from Table 4-8 among the calculated indexes, the descriptive mean index and the standard deviation of the scores Dispersion index shown that in all critical thinking levels the mean is higher but the standard deviation and standard error measurement show the homogeneity among the participants was being changed but we need referential statistics to see whether the difference was significant and using translation technology had any effect on their critical thinking development .

Inferential Statistics

Before testing the null hypothesis, the researchers needed to know whether the obtained scores of different exams of this research have normal distribution or not so she had to use Kolmogorov–Smirnov test (KST). The results are presented in the following tables.

Analyzing of the Assumption of Normal Distribution of the tests

Table 4-9
The Assumption of Normal Distribution of the Variables Test

Tests	Kolmogorov -Smirnov Z	Sig.
General English	0.901	.0391
Pre translation	0.579	0.891
Post translation	0.747	0.632
Pre critical test	0.42	0.99
Post critical test	0.79	0.55

As the table shows for all the exams the distribution is normal. The significant level obtained in the test (KS) in the study variables are more than 05/0 so it could be said that the given variables distribution in the statistical samples had a normal distribution and the researchers could test the research hypothesis through parametric tests.

Testing the First Null Hypothesis

In this section the data obtained from the tests were analyzed using the inferential statistics and with regard to the given assumptions of the two research hypotheses was analyzed by using sample paired t test.

H01: Using the translation technologies has no effect on the Translation Studies students' critical thinking.

In order to test the above mentioned hypothesis (comparing the pretest and post test scores) the Paired t-test comparison was used to analyzing the given hypothesis.

Table 4-10
Descriptive Statistics of the Critical Thinking

variable	Mean	N	Std. Deviation	Std. Error Mean
Pre Inference	2.0645	31	1.12355	.20180
Post Inference	4.4516	31	1.67010	.29996
Pre Analysis	2.9677	31	1.13970	.20470
Post Analysis	4.1935	31	1.19497	.21462
Pre Evaluation	3.2903	31	2.05254	.36865
Post Evaluation	6.4194	31	2.41901	.43447
Critical thinking- pre	8.3226	31	2.82119	.50670
Critical thinking-post	15.0323	31	3.94533	.70860

As the table 4-10 shown the mean of the critical thinking scores and their components in the critical thinking posttest were higher than the critical thinking pretest scores. The significance of the above mentioned issue was analyzed in the following.

Table 4-11
The results of the t correlated of the critical thinking mean

variable	Paired Differences		T	df	Sig
	Mean	Std. Deviation			
Inference	-2.38	1.725	-7.701	30	.0001
Analysis	-1.22	1.430	-4.77	30	.0001
Evaluation	-3.129	1.707	-10.20	30	.0001
Critical thinking (Total score)	-6.709	3.716	-10.05	30	.0001

As the results of the t correlated test shown since the absolute value of the t with 30 degrees of freedom in the variables of the inference, analysis, evaluation and critical thinking (total score) is greater than the critical value and also since the achieved significant level was 0/0001 less than significant level of the 0/01ratio so it could be said with the 99 percent confidence that the difference between the mean of the pretest and posttest were significant and meaningful. In addition, the comparison between the scores shown that the post test scores were greater than the pretest scores .So the difference between the pretest and posttest scores approved.

Testing the Second Null Hypothesis

The second question related to the effect of using the translation technologies on theTranslation Studies students' translation comptence.

H02: using the translation technologies have no significant effect on the Translation Studies students' translation (translation scores).In order To test the hypothesis (comparison of the pre-test and post-test) the t correlated test were used.

Table 4-12
Descriptive statistics of the scores of translation

variable	Mean	N	Std. Deviation	Std. Error Mean
translation-pre test	5.4839	31	1.21439	.21811
translation-post test	7.6129	31	1.22277	.21962

As it can be inferred from Table 4-12 the mean of the translation in the post test is higher than the average score in the pretest.

Table 4-13
Results of paired sample t-test of the translation test mean

variable	Paired Differences		T	df	Sig
	Mean	Std. Deviation			
Translation	-2.12	0.948	-12.49	30	.0001

As the t-test results shown since the absolute value of the obtained t with 30 degrees of freedom the translation variable is greater than the critical t-value and also since the achieved significant level was 0/0001 less than significant level of the 0/01ratio so it could be said with the 99 percent confidence that the difference between the mean of the pretest and posttest were significant and meaningful. In addition, the comparison between the scores shown that the post test scores were greater than the pretest scores .So the difference between the pretest and posttest scores approved.

DISCUSION AND CONCLUSION

To perform this research, the researchers in order to choose a homogenized sample prepared a questionnaire and a general reading comprehension test for those university students who registered to participate in a free translation workshop class. 31 of the Iranian senior Translation Studies students of the Islamic Azad Univercity- Central Tehran branch and Allameh Mohaddes Nouri University (Non-governmental, Nonprofit) with the average age of the 18 to 26 years old, were selected. In order to fulfill the purpose of this study, the researchers had to use different instruments including different tests for measuring the participants' language abilities, various online or electronic soft wares and standard test of critical thinking. The researchers used the standardized Persian version of the California Critical Thinking Skills Test (Mahboobi, 2012) to pretest the subjects' critical thinking skills. In addition, the subjects' translation abilities and performance were evaluated at the beginning of the training period by the researchers using the translation text as explained in chapter 3. Then the participant passed a three month translation technologies training period. They were taught some of the most common translation technologies and electronic tools of the translation by the researchers. At the end of the training period the participants' critical thinking abilities were tested as a posttest by the researchers using the same the standardized Persian version of the California Critical Thinking Skills Test (Mahboobi, 2012) in order to evaluate their critical thinking abilities improvement. The participants' translation proficiency and competence were evaluated as a post test to see their enhancements. The finding of the tests were evaluated to find the effects of the translation technologies on the Translation studies students' critical thinking as the research main question and to see the possible effect of the translation technologies on the subjects translation ability and performance.

The results of the present study showed that both of the null hypotheses of this research were rejected so two major conclusions were obtained. First, based on the findings of this research, the translation technologies had a positive effect on the Translation Studies students' critical thinking and, it was also proved that the translation technologies had a positive effect on the Translation Studies students' translation performance.

REFERENCES

Abrami, P. C., Bernard, R. M., Borokhovski, E., Wade, A., Surkes, M. A., Tamim, R., & Zhang, Dai. (2008). Instructional interventions affecting critical thinking skills and dispositions: A stage 1 meta-analysis. Review of Educational Research, 78(4), 1102–1134.

Alcina, A. (2008). Translation Technologies: Scope, tools and Resources. Retrieved on May 2013 fromwww.benjamins.com.

Barrow, J. (2008). Electronic Dictionary Use in Novice L2 Learner Interaction. Retrieved on August 2013 from http://digital.library.temple.edu/cdm/search/searchterm/Gabriele

Bontila,R. (2008). Annotation Transtextual Translation. Retrieved on October 2013 from ww.faculty.ksu.edu.sa.

Colby, I. (2009). An overview of social work education in the United States: New directions and new opportunities. China Journal of Social Work, 2(2), 119-130. doi: 10.1080/17525090902992339.

Dohler, P. (1997). Facets of Software Localiza tion: A Translator's View Translation Journal. Retrieved onAgust 2013 fromhttp://accurapid.com/journal/softloc.htm.

Dubey, P. (2000). Overcoming the Digital Divide through Machine Translation. Retrieved on May 2013 from http://accurapid.com/journal/softloc.htm http://www. translationdirectory.com / articles/ article2326.php

Elder, L. & Paul, R. (1994). Critical Thinking: Why we Must Transform our Teaching. Journal of Developmental Education, 18(1), 34-35.

Facione, A. P. (1990). Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction.Retrieved on May 2013 fromhttp://files.eric.ed.gov/fulltext/ED315423.pdf .

Fictomova, J. (2004). Technology-enhanced Translator Training. Second International Workshop on Language Resources for Translation Work, Research and Training. Geneva. Retrieved on Agust 2013 from http://accurapid.com/journal/softloc.htm www.academia.edu.

Fulford, H &Granell-Zafra, J. (2005). Translation and Technology: a Study of UK Freelance Translators. Retrieved onAgust 2013 from http://accurapid.com/journal/softloc.htm www.jostrans.org.

Garcia, I. (2009). Beyond Translation Memory: Computers and the Professional Translator. Retrieved on October 2013 from www. jostran.org/issue12/art_garcia.pdf

Gelder, T. (2011). How to Improve Critical Thinking Using Educational Technology. Retrieved on May 2013 from www.pacacademy.org.

Gill, J & Pym, A. (2002).Technology and translation (a pedagogical overview). Retrieved on August 2013 fromwww.isg.urv.es.

Göpferich, S. (2007). Research Project TransComp: The Development of Translation Competence. Retrieved on August 2013 fromhttp://gams.uni-graz.at/fedora/get/container:tc/bdef:Container/get.

González, D. (2004). Undergraduate and Postgraduate Translation Degrees: Aims and Expectations. In Malmjkaer, K. (ed.), Translation as an Undergraduate Degree. Amsterdam & Philadelphia, John Benjamins.

Hasse, F. (2010). Categories of Critical Thinking in Information Management. A Study of Critical Thinking in Decision Making Processes. Retrieved on Novamber 2013 fromhttp://www.redalyc.org/pdf/181/181137570 15.pdf.

Huff, M. (2000). A comparison study of live instruction versus interactive television for teaching MSW students critical thinking skills. Research on Social Work Practice, 10(4), 400-416. Retrieved on May 2013from Academic Search Premier Database.

Kiraly, D. (1995). Pathways to translation. Pedagogy and process.Retrieved on August2013 fromhttp://www.erudit.org/revue/meta/1996/v41/n1/002159ar.pdf

Lai, E. (2011). Critical Thinking, A Literature review. Retrieved on May 2013 fromwww.pearsonassessments.com

Maiorana, V. P. (1992). Critical thinking across the curriculum: Building the analyticalclassroom. (ERIC Document Reproduction Service No. ED 347511).

Mahboobi, M. (2012). The contrastive analysis of critical thinking skills and tendency toward critical thinking in devotee and undevotee university students, Journal of military medicine, Period 14, Number 4.

Moon, J. (2008). Critical Thinking: An exploration of theory and practice. Retrieved on May 2013 from

http://vct.qums.ac.ir/Portal/file/?180492/Critical-Thinking-An-Exploration-of-Theory-and-Practice.pdf

Moore, B.N. & Parker, R. (1994). Critical Thinking. Mountain View. Retrieved on May 2013 fromhttp://edis.ifas.ufl.edu/wc206

Nordquest, R. (2013). Critical Thinking. Retrieved on May 2013 from www. critical-thinking.org.

O'Brien, Sh. (2011). Translation as Human - Computer Interaction. Retrieved on August 2013 from bejmins.com/catalog/persons/10295

Orozco, M., & Hurtado Albir, A. (2002). Measuring translation competence

acquisition._meta 47 (3), 375-402.

Paul, R. (1990). Critical thinking: What every person needs to survive in a rapidly changing world.Retrieved on August 2013 from https://d3jc3ahdjad7x7.cloudfront.net/W1zUdGRxQbu1ulF9wlL7il2eOYBWE5CqbxvS7Bxc0fv29IS0.pdf

Pym,A&Perekrestenko, A &Starink B. (2006). Translation Technology and Its Teaching. Retrieved on May 2013 from www.isg.urv.es.

Sánchez, P. (2006). Electronic Tools for Translators in the 21st Century. Retrieved on August 2013 from www.bokorlang.com

Scriven, M & Paul, R. (1978). Statement of the 8the Annual International Conference on Critical Thinking and Education Reform. Retrieved on May 2013 fromwww.criticalthinking.org

Simon, H.A., &Kaplan,C.A. (1989). Foundations of cognitive science.InM.I.Posner's (Ed.),Foundations of cognitive science.Cambridge,MA:MIT Press

Stall, N.N., & Stahl, R.J. (1991). We can agree after all: Achieving a consensus for a critical thinking component of a gifted program using the Delphi technique. Roeper Review, 14 (2), 79-88.[39]

Tretyakov, R. (2013). Developing Critical Thinking in Literary Translation course. Retrieved on May 2013 from www.group-global.org.

Ultkin, I. (2013). Computers as Translation tools. Retrieved on May 2013 fromwww.translationdirectory.com.

Waddington, C. (2001). Different Methods of Evaluating Student Translations: the Question of Validity. Meta, XLVI, Vol. 2, pp. 311-315.

Walker, G. (2005). Critical Thinking in Asynchronous Discussion. Retrieved on May 2013 fromwww.itdl.org.

Watson, G., Glaser, E. M. (1980). Watson-Glaser Critical Thinking Appraisal manual. Retrieved on Novamber 2013 from http://us.talentlens.com/wp-cotent/uploads/WG2_TechMan_2012.pdf

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