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Familiarity of Sudanese Translators with Free Online English-Arabic Machine Translation

Abbas Mukhtar Mohamed Badawi
English Department, College of Languages, Sudan University of Science and Technology
Email: abbasbadawi@gmail.com

Abstract
This study focuses on evaluating the Free Online Machine Translation Systems; namely Google Translate and Microsoft Bing Translator It aims To identify the implementation and familiarity of Sudanese professional translators and language professionals of Free Online Machine Translation Tools from Arabic to English in order to ascertain how they react to and embrace the current trends of Free Online Machine Translation Systems; not only in their social aspect, but more importantly as a business solution for the future production. A questionnaire is designed and distributed to (100) university staff of languages at Sudan University of Science and Technology and professional and free lance translators at translation institutions. The study uses the descriptive analytical method and uses SPSS for statistical analysis of the data. The study concludes that Sudanese professional translators and language professional seldom implement Machine Translation (MT) and MT will never replace Human Translation.
Keywords: Machine Translation Evaluation, Free Online Machine Translation Systems, and Professional Translator.

Abstract (Arabic Version)
هدفت الدراسة إلى تقييم أنظمة الترجمة الآلية المجانية عبر الانترنت. وقد اختار الباحن مترجم جوجل و مترجم بنج من شركة مايكروسوفت بنج المترجم للتعرف على مدى استخدام المترجمين المحترفين السودانيين وخبراء اللغات و الترجمة لأنظمة و أدوات الترجمة الآلية المجانية من العربية إلى الإنجليزية و التعرف على ميولهم و اتجاهاتهم .تم تصميم استبيان وتوزيعه على (100) مستجيب من جامعة جامعة السودان للعلوم والتكنولوجيا واالمترجمين المحترفين في مؤسسات الترجمة. ايتخدمت الدراسة المنهج الوصفي التحليلي، و برنامج *SPSS* للتحليل الإحصائي للبيانات .خلصت الدراسة إلى أن المترجمين المحترفين السودانين و خبراءاللغات و الترجمة لا يستخدمون الترجمة الآلية في حياتهم العملية إلا نادرا.
كلمات البحث: تقييم الترجمة الآلية ، أنظمة الترجمة، الترجمة الآلية المجانية والترجمة البشرية المهنية

Introduction

Using machine translation for draft preparation is a common practice among many professional translators. As Champollion (2003) and Lagoudaki (2008 and other similar linguists use technology to derive the essence of foreign text due to its availability and relatively low cost. For example, Altai (2002) postulated that anyone can quickly search to translate a Finnish to Hindi web page, and readers may just want

to find the original content. Some professional translators may charge $ 0.05 per word, and so a human translation of just 520 words would cost $ 26. Much more than what the reader would be willing to spend on questionable material.

Free Online Machine Translation Systems

Free Online Translation Includes any free online resource used by translators, such as Internet search engines, monolingual and bilingual dictionaries, glossaries, parallel corpora, peer-to-peer language usage forums, sophisticated computer-assisted translation (CAT) suites that combine multiple functions (terminology management, translation memory, etc.), and FOMT solutions, such as Google Translate. Research conducted on FL students at Duke University in 2011 and 2012 confirmed the prevailing suspicion among FL instructors that students overwhelmingly favor Google Translate over other FORTs: 81% of the respondents reported using Google Translate to support their language learning (Clifford et al., 2013, p. 111), a significantly higher percentage than that of any other tool. Accordingly, the research project described in this article was designed to focus on Google Translate by using in its questionnaires the terms *Google Translate* or *Google Translate or similar tools* exclusively

Google Translate and Bing Translator

According to the official web page of Google Translate cited in 2016, it is a free translation tool from Google Company that can be used via browser, mobile browser, Android app, or iOS app. Both the browser and mobile browser versions can translate text and web pages, and the non-mobile browser can also translate some documents. The Android and iOS app can translate text, real-time speech, images, web pages, and even real-time video for some languages.

Microsoft Translator (2016), on the other hand is a free translation tool from Microsoft that can also be used via browser or mobile browser (via Bing Translator), and has apps for Windows, Windows Phone, iOS, Android, and apps for Apple Watch and Android Wear. Additionally, Microsoft Translator can be integrated with other Microsoft applications, like Microsoft Office, Skype, and Visual Studio. The browser versions can translate only text and web pages, but the Microsoft Translator apps can work with text, real-time speech, and images.

Google Translate has long been the favorite when it comes to translation tools where as Microsoft Translator (also known as Bing Translate) has been catching up in the last two years. Now they’re both fairly comparable when it comes to functionality.

Google Translate can handle 103 languages, but not every language works with every feature. For example, French can be translated using all six of Translate’s features: type, write, talk, snap, see, and offline. Arabic works with everything but snap photos. And the Hausa language, which is mainly spoken in Nigeria, can only be translated via text. According to the Google Translate official website cited in 2016, it is a free translation tool from the Google company that can be used through a browser, mobile browser, Android app, or iOS app. Both browser and mobile browser versions can translate text and web pages, and non-mobile browsers can also translate some documents. Android and iOS apps can translate text, real-time language, images, web pages, and even real-time video for some languages. Microsoft Translator (2016), on the other hand, is a free translation tool from Microsoft, which can also be used through a browser or mobile browser (Bing Translator) and includes Windows, Windows Phone, iOS, Android and Apple Watch. And Android Wear apps. . In addition, Microsoft Translator can be integrated with other Microsoft applications such as Microsoft Office, Skype, and Visual Studio. Browser versions can only translate text and web pages, but Microsoft Translator applications can work with

text, real-time speech, and images. Google Translate has long been a favorite among translation tools, which Microsoft Translator (aka Bing Translate) has caught over the past two years. Now both are much more comparable when it comes to functionality. Google Translate can handle 103 languages, but not every language works with every feature. For example, French can be translated using all six functions of translation: type, write, speak, hold, watch, and offline. Arabic works with everything except snapshots. And the Hausa language, mainly spoken in Nigeria, So it is good that Google Translate has such a wide range. When it comes to Microsoft Translator's 54 languages, it is a similar story, but on a much smaller scale. It is a real-time voice translation capable of Arabic, Mandarin Chinese, English, French, German, Italian, Portuguese, Russian and Spanish examples. But 44 of Microsoft Translator's 54 languages can be used offline, while Google Translate only supports half of them for offline use. Google has more languages overall and a few more are available for offline use, but they are both on the same line when it comes to providing full translation support for similar popular languages.

As mentioned previously, Google Translate has six main features:

1. **Type**: You type in some text in browser or on phone.
2. **Write**: scribbling a word or phrase on touch screen with a finger.
3. **Talk**: Talking into phone’s microphone and it translates what is said in real-time.
4. **Snap**: Taking a photo of text and it translates it.
5. **See**: Pointing phone’s camera at some text and it translates it in real-time.
6. **Offline**: Using the above features without an internet connection.

Microsoft Translator has five main features:

1. **Text**: Typing some text in browser or on phone.
2. **Speech**: Talking into phone’s microphone and it translates what is said in real-time.
3. **Photo**: Taking a photo of text and it translates it.
4. **Conversation Mode**: Speaking into phone’s microphone with a partner and it gets translated in real-time.
5. **Offline**: Using the above features without an internet connection.

Methodology

The population of this part of the study includes two main representative samples. The first essential subjects are staff of English at Sudan University of Science & Technology, and Professional and free lance translators at various Translation institutions where as the second sample includes two free online machine translation tools to translate Arabic news headlines into English, which selected from daily Sudanese news papers at Sudan news Agency.

The study sample respondents differ according to the following characteristics:

-The respondents have different qualifications and academic Status (Full time, Freelance Translator, Lecturer, Assistant Professor, Associate Professor, and Professor).

-The respondents have different years of experience in translation (1- 5 years, 6-10 years, 11-15, 16-20, and above 20 years).

-The following a detail description for study sample individuals according to the above variables (respondents' characteristics)

Qualification and Academic Status:

Table no.(3-1)

The frequency distribution for the respondents of the study according to the qualification and academic status.

Qualification	number	Percent
Full time Translator	12	12.0
Freelance Translator	50	50.0
Lecturer	9	9.0
Assistant Professor	30	30.0
Associate Professor	9	9.0
Professor	4	4.0
Total	100	100.0

Source: The researcher from applied study, 2016

From above table, it is shown that most of the study's respondents Free Lance Translators, the number of those is (50) persons with percentage (50.1%). The Assistant Professors respondents are (20) persons with (20 %)..

2- Years of Experience in Translation:

Table no.(3-2)

The frequency distribution for the study respondents according to the year of experience in translation

Experience	number	%
1-5	15	15.0
6-10	12	12.0
11-15	15	15.0
16-20	27	27.0
Above 20 year	33	33.0
Total	100	100.0

Source: The researcher from applied study, 2016

It is noted from the table no.(3-4) that, most of the sample's respondents have experience between (1) and (5) years, their number is (15) persons with percentage (15 %). The number of sample's respondents whom have experience between (5) and (10) years is (12) persons with percentage (12%), The number of sample's respondents whom have experience between (11) and (15) years is (15) persons with percentage (15%). The number of sample's respondents whom have experience between (16) and (20) years is (27) persons with percentage (27%). The number of sample's respondents whom have experience (20) years is (33) persons with percentage (33%)

Statistical Reliability and Validity:

The reliability of any test is meant to obtain the same results if the same measurement is used more than one time under the same conditions. In addition, the reliability means when a certain test was applied on a number of individuals and the marks of every one were counted; then the same test applied another time on the same group and the same marks were obtained; then we can describe this test as reliable. In addition, reliability is defined as the degree of the accuracy of the data that the test measures. Here are some of the most used methods for calculating the reliability:

1. Split-half by using Spearman-Brown equation.

2. Alpha-Cronbach coefficient.
3. Test and Re-test method
4. Equivalent images method.
5. Guttman equation.

The value of the reliability and the validity lies in the range between (0-1). The validity of the questionnaire is that the tool should measure the exact aim, which it has been designed for.

The researcher calculated the validity statistically using the following equation:

$$\text{Validity} = \sqrt{\text{Reliability}}$$

The researcher calculated the reliability coefficient for the measurement, which was used in the questionnaire using (split-half) method. This method stands on the principle of dividing the answers of the sample individuals into two parts, i.e. items of the odd numbers e.g. (1, 3, 5, ...) and answers of the even numbers e.g. (2,4,6 ...). Then Pearson correlation coefficient between the two parts is calculated. Finally, the (reliability coefficient) was calculated according to Spearman-Brown Equation as the following:

$$\text{Reliability Coefficient} = \frac{2 \times r}{1 + r}$$

r = Pearson correlation coefficient

For calculating the validity and the reliability of the questionnaire from the above equation, the researcher distributes about (10) and (20) translators questionnaires touniversity staff and translators respectively. In addition, depending on the answers of the pre-test sample, the above Spearman-Brown equation is used to calculate the reliability coefficient using the split-half method; the results can be shown shown in the following table:

Table (3-10): The statistical reliability and validity of the pre-test sample about the study questionnaire.

Reliability	Validity
0.77	0.88

Source: The researcher from applied study, 2016

It can be observed from the above table the reliability and validity coefficients for pre-test sample individuals about each questionnaire's theme, and for overall questionnaire, are greater than (50%), and some of them are nearest to one. This indicates the validity and reliability of the answers is high and therefore the questionnaire is valid and reliable, and it gives correct and acceptable statistical analysis.

Statistical Instruments

In order to meet the study objectives and to test its hypotheses, the researcher uses the following statistical instruments:

1. Frequency distribution.
2. Person correlation coefficient.
3. Spearman-Brown equation for calculating Reliability coefficient.
4. Median.
5. Non-parametric Chi-square test.

In order to obtain accurate results, Statistical Package for Social Sciences (SPSS) is used.

Validity of the Questionnaire

The questionnaire is first designed by the researcher and then approved by the supervisor and four other experts who are PhD holders in the field. To test the validity of the staff questionnaire, 10 questionnaire copies are randomly selected, and then manipulated using the (SPSS), through Pearson Coefficient Factor Test. The following tables illustrate the results of this procedure. The values of Pearson Coefficient Factor between items and the total of the dimension with reference to the total of the questionnaire are positive and greater than 0.20. This indicates a good validity for all the items of the dimension of the questionnaire and hence it is valid to give accurate data and results.

Reliability of the Questionnaire

To test the reliability of the staff questionnaire, 10 questionnaire copies were randomly selected, and then manipulated using Alpha Cronbach's

Procedures

After the reliability and validity of the tools have been confirmed, the researcher distributed copies of the two tools to the samples of the population of (100) respondents as stated above and the researcher constructed the required tables for collected data. This step represents the transformation of the qualitative (nominal) variables (strongly disagree, disagree, Undetermined, agree, and strongly agree) to quantitative variables (1, 2, 3, 4, 5) respectively, also the graphical representation are done for this purpose.

The Results

This section displays the statistical results of data analyzed for the questionnaire. The researcher discusses the statistical results as they pertain to the research questions or hypotheses.

The results of this research study provide answers to the four research questions and display that Sudanese Staff and professional Translators seldom implement MT and they have negative perception on FOMTS

Proficiency of Translation

Question No.(1): How competent you are at translation.

Table no. (4-11) shows the frequency distribution for the study's respondents about question no.(1).

Table no.(3-3)

The frequency distribution for the respondents' answers about question no.(1)

Answer	Number	Percent
Competent	40	40.0
Almost competent	22	22.0
About average	18	18.0
Less competent	10	10.0
Not competent	10	10.0
Total	100	100.0

Source: The researcher from applied study, 2016

It is clear from table no.(3-3) that there are (40) persons in the study's sample with percentage (40.0%) have competent with " How competent you are at translation ". There are (22) persons with percentage (22.0%) have almost competent about that and

(18) persons with percentage (18.0%) have about average about that, and (10) persons with percentage (10.0%) have less competent about that and (10) persons with percentage (10.0%) have not competent about that.

Computer Literacy

Question No.(1): What is you level of computer literacy.

Table no. (3-4)) shows the frequency distribution for the study's respondents about question no.(2).

Table no.(3-4)

The frequency distribution for the respondents' answers about question no.(1)

Answer	Number	Percent
Very high	15	15.0
High	10	10.0
Average	55	55.0
Low	15	15.0
Very low	5	5.0
Total	100	100.0

Source: The researcher from applied study, 2016

It is clear from table no. (3-4) (3-4) that there are (15) persons in the study's sample with percentage (15.0%) have very high with computer literacy. There are (10) persons with percentage (10.0%) have high about that, and (55) persons with percentage (55.0%) have about average about that, and (15) persons with percentage (15.0%) have less competent about, and (5) persons with percentage (5.0%) are not competent about that.

Professional Translators are not familiar with MT

Question No. (3): How familiar are you with MT.

Table no. (3-5) shows the frequency distribution for the study's respondents about question no. (3).

Table no.(3-5)

The frequency distribution for the respondents' answers about question (3)

Answer	Number	Percent
Familiar	10	10.0
Almost familiar	8	8.0
About average	22	22.0
Little familiarity	47	47.0
Not familiar	13	13.0
Total	100	100.0

Source: The researcher from applied study, 2016

The table (3-5) show that there are (10) persons in the sample of the study with percentage of (10.0%) are familiar with Machine Translation. There are (8) persons with percentage of (8.0%) have almost familiar about that, and (22) persons with percentage (22.0%) have about average about that, and (47) persons with percentage (47.0%) have little familiarity about that, and (13) persons with percentage of (13.0%) are not familiar about that

Question No. (4): How much training you have had on MT.

Table no. (3-6) show the frequency distribution for the respondents of the study about question no. (4).

Table no.(3-6)

The frequency distribution for the respondents' answers about question (4)

Answer	Number	Percent
Familiar	15	15.0
Almost familiar	10	10.0
About average	20	20.0
Little familiarity	45	45.0
Not familiar	10	10.0
Total	100	100.0

Source: The researcher from applied study, 2016

It can be stated from table no. (3-6) that there are (15) persons in the study's sample with percentage (15.0%) have familiar with "How much training you have had on Machine Translation. There are (10) persons with percentage (10.0%) are almost familiar about MT, and (20) persons with percentage (20.0%) have about average about that, and (45) persons with percentage (45.0%) have little familiarity about that, and (10) persons with percentage (10.0%) have not familiar about that.

Professional Translators do not implement MT

Question No. (1): How often do you implement online MT systems?

Table no. (4-7) the frequency distribution for the study's respondents about question no.(1).

Table no.(4-7)

The frequency distribution for the respondents' answers about question no.(1)

Answer	Number	Percent
Always	18	18.0
Often	28	28.0
Sometimes	50	50.0
Seldom	2	2.0
Rarely	2	2.0
Total	100	100.0

Source: The researcher from applied study, 2016

It is clear from table no.(4-7) that there are (18) persons in the study's sample with percentage (18.0%) have always with " How often do you implement online MT tools ". There are (28) persons with percentage (28.0%) have often on that and (50) persons with percentage (50.0%) have sometimes about that, and (2) persons with percentage (2.3%) is seldom about that, while (2) person with percentage (2.0%) have rarely about that.

Question No.(2): Google Translate

Table no. (4-8) shows the frequency distribution for the study's respondents about question no.(2).

Table no.(4-8)

The frequency distribution for the respondents' answers about question no.(2)

Answer	Number	Percent
Always	35	35.0
Often	13	13.0
Sometimes	10	10.0
Seldom	42	42.0
Total	100	100.0

Source: The researcher from applied study, 2016

It is clear from table no.(4-8) that there are (35) persons in the study's sample with percentage (35.0%) have always with " I use Google Translate". There are (13) persons with percentage (13.0%) have often on that, and (10) persons with percentage (10.0%) have sometimes about that, and (42) persons with percentage (42.0%) is seldom about that.

Question No.(3): I use Bing Translator.

Table no. (4-9) shows the frequency distribution for the study's respondents about question no. (3).

Table no.(4-9)

The frequency distribution for the respondents' answers about question no.(3)

Answer	Number	Percent
Always	24	24.0
Often	20	20.0
Sometimes	43	43.0
Seldom	31	13.0
Total	100	100.0

Source: The researcher from applied study, 2016

It is clear from table no.(4-9)) that there are (24) persons in the study's sample with percentage (24.0%) have always with " I use Google Translate ". There are (20) persons with percentage (20.0%) are often on that, and (43) persons with percentage (43.0%) are sometimes about that, and (13) persons with percentage (13.0%) is seldom about that.

Question No.(4): News headlines.

Table no. (4-10) show the frequency distribution for the study's respondents about question no.(4).

Table no.(4-10)

The frequency distribution for the respondents' answers about question no.(4)

Answer	Number	Percent
Always	3	3
Often	7	7
Sometimes	47	47
Seldom	43	43
Total	100	100.0

Source: The researcher from applied study, 2016

It is clear from table no.(4-10) that there are (3) persons in the sample f the study with percentage (3.0%) have always with " News headlines ". There are (7) persons with percentage (7.0%) have often on that, and (47) persons with percentage (47.0%) have sometimes about that, and (43) persons with percentage (43.0%) is seldom about that.

Question No.(5): letters, e-mails, notes.

Table no. (4-11) shows the frequency distribution for the study's respondents about question no.(5).

Table no.(4-11)

The frequency distribution for the respondents' answers about question no.(5)

Answer	Number	Percent
Alway	20	20.0
Often	47	47.0
Sometimes	23	23.0
Seldom	6	6.0
Rarely	4	4.0
Total	100	100.0

Source: The researcher from applied study, 2016

It is clear from table) that there are (20) persons in the study's sample with percentage (20.0%) have always with " letters, e-mails, notes ". There are (47) persons with percentage (47.0%) have often on that, and (23) persons with percentage (23.0%) have sometimes about that, and (6) persons with percentage (6.0%) is seldom about that, while (4) person with percentage (4.0%) have rarely about that.

Question No.(6): extracts from a novel, narrative etc.

Table no. (4-12)) shows the frequency distribution for the study's respondents about question no.(6).

Table no.(4-12)

The frequency distribution for the respondents' answers about question no.(6)

Answer	Number	Percent
Always	36	36.0
Often	51	51.0
Sometimes	8	8.0
Seldom	5	5.0
Total	100	100.0

Source: The researcher from applied study, 2016

It is clear from table no.(4-12)) that there are (36) persons in the study's sample with percentage (36.0%) have always with " extracts from a novel, narrative etc ". There are (51) persons with percentage (51.0%) have often on that, and (8) persons with percentage (8.0%) have sometimes about that, and (5) persons with percentage (5.0%) is seldom about that.

Question No.(7): documents, official correspondence.

Table no. (4-13) shows the frequency distribution for the study's respondents about question no.(7).

Table no.(4-13)

The frequency distribution for the respondents' answers about question no.(7)

Answer	Number	Percent
Always	17	17.0
Often	13	13.0
Sometimes	12	12.0
Seldom	58	58.0
Total	100	100.0

Source: The researcher from applied study, 2016

It is clear from table no.(4-13)) that there are (17) persons in the study's sample with percentage (17.0%) have always with " extracts from a novel, narrative etc ". There are (13) persons with percentage (13.0%) have often on that, and (12) persons with

percentage (12.0%) have sometimes about that, and (58) persons with percentage (58.0%) is seldom about that.

Findings and Conclusion

Google Translate System is the most adequate and acceptable than Bing Translator in translating from Arabic into English. The finding of the present study also indicates that Google Translate is acceptable in translation output more than Bing Translator of Microsoft in regard stating that Google Translate advancement in producing satisfactory Arabic translation has exceeded expectations, due to the better understanding of the unique characteristics of Arabic language and adopting and applying the most suitable processing approaches. However, Sudanese professional Translators and university staffs are rarely implement FOMTS for their daily routine work.

The study concludes to some findings which can be briefly listed as follows:

1. Professional Translators and University staffs of languages have little familiarity of Machine Translation
2. Professional Translators and University staff of languages have little (15%)
3. 1 (18%) of Professional Translators and University staffs of languages are in favour of Bing meanwhile (35%) are in favour of Google Translate.
4.(3%) of Professional Translators and University staffs of languages implement MT to translate news headlines from Arabic to English and vise versa.

Recommendations

The findings of the current study recommend that there is critical need for further research in this area to fill the gap in research. The researcher recommends conducting further studies with other population to present a clear picture of the investigated phenomenon. Further studies and researches can be carried on to disprove or verify these findings. Further studies may be carried on to investigate other MT systems to uncover their linguistic features.

References

Altay, D. (2002). Difficulties encountered in the translation of legal texts: The case of Turkey. Translation Journal Oxford University Press. P: 359- 369.

Arabic/English MT Engine. <www.elsnet.org/arabic2001/chalabi.pdf > [10August 2010].

Zughoul, M, Abu-Alshaar, A. (2005).s: A Historical Perspective Translators' Journal 50 (3): 1022–1041.Retrieved from http://id.erudit.org/iderudit/011612ar. Retrieved 2 June 2011.

Guerberof, Ana. 2009. “Productivity and quality in the post-editing of outputs from translation memories and machine translation.” Localisation Focus – The International Journal of Localisation.

Guerberof, Ana. 2009. “Productivity and quality in mt post- editing.” MT Summit Workshop on New Tools for Translators Chalabi,A. (2001). Sakhr Web-based.

Iarovici, E. and Amel, R. (1989).The Strategy of the Headline.Semiotica. 77(4): 441-459.

Hutchins, J. and Somers, H. (1992).An Introduction to Machine Translation. London: Academic Press Limited

Izwaini, S. (2006). Problems of Arabic Machine Translation: Evaluation of Three Systems. Proceedings of the International Conference at the British Computer Society (BSC), London.

Swan M. (1996). Practical English Usage.International Student’s Edition.Second Edition

Koponen 2015, Daems et al. 2015. “Post-editing time as a measure of cognitive effort.” AMTA 2012 Workshop on Post-Editing Technology and Practice (WPTP 2012), 11–20. San Diego, USA.
www.bingtranslator.com (2016)
www.translate.google,com (2016)