Machine Translation in Arabic-Speaking Context and Students' Perceptions of It

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Abstract

Machine Translation (MT) is an engine that accelerates language learning, design creation, and contemporary comprehension of many areas of language and communication based on our qualitative understanding of secondary resources. Arab students regard Arabic as a source language that is afterwards translated into English texts and words in order to fully comprehend diverse debates through interviews and interaction. The main objective of the current study was to show how language, culture, and communication are all intertwined, particularly in non-English speaking nations, through MT. The study concentrated on both major and minor elements that influence the translation of texts and how emotions communicated orally and nonverbally. Inherent obstacles include the concept of computerized anxiety, pressured human mind, inadequate adaptability, non-reliability, and indirect sources of translating messages. The idea was to draw attention to challenges in the translation process, particularly in terms of organizing data related to analogies, clinical knowledge, and textual connotation, as well as, utmost crucially, retaining the essence of the original and transcribed data. The findings imply and advocate both individual effort in learning foreign vocabulary, engaging in a first-hand non-machine approach, and appropriate advancement in machine translation. Throughout the translation process, the data's authenticity and reliability was ensured.

Introduction

In a variety of fields like scientific domain, academic research, business, management, education, health, culture, politics, diplomacy, development etc. the importance of intercultural communication cannot be denied. With the help of travel, international media and internet, communication among people becomes easy. In order not to isolate the rest of the world and to survive in such a kind of environment everybody needs to interact with each other. For practically every student throughout the world, machine translation has become an indispensable tool for facilitating translation work across geographical regions (Al-Amer, Ramjan, Glew, Darwish, & Salamonson, 2015; Bahri & Mahadi, 2016; Calin, 2020). The study would look into the difficulties that students might have during the implementation phase. Many studies and

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secondary sources have revealed that using machines in the translation process has become a tempting pastime for students. In reality, it has proven to be a marvel for the pupils, as well as a valuable learning experience. It is essentially concerned with the context and perception of both similarities and differences.

The study focuses on the human component, or the participation of the human mind and emotion. Native languages, often known as mother tongues, play an important part in the development of a person's personality and mentality. The study's goal is to show how communication, language and culture are all intertwined in the global development of humans. This is now done in various regions of non-English speaking nations through MT, with Arab countries' EFL students as the study's basis area. Because translation is an interpretive process rather than a simple message transfer from one language to another, translators must capture the complete meaning of the spoken language in a systematic and correct manner. Though studies show that they face a variety of obstacles as a result of learning new languages and adapting to new cultures, good use of it outweighs the disadvantages.

The findings show that further research is required in this subject, as demand for machine translation grows in non-English speaking countries. In fact, such procedures have proven to be so beneficial that they may now be used to interpret a variety of critical cultural statements, clinical terminologies and so on. Machine translation (MT) is thus useful as an educational tool to translate foreign languages and foreign language pupils while preferring digital learning and classes, according to secondary resources. The paper has discussed the importance of machine translation in general.

Literature Review

People communicate with one another in any context, therefore cultural and linguistic interconnection occurs regularly. As a result, in their work, Köksal and Yürük (2020) emphasized the importance of translating languages and decoding culture in national, international, and social relations. Machine Translation is always useful in breaking down language barriers, and it has helped to bridge the gap between various viewpoints and expressions. In another study, Nouatin and Parreiras (2021) investigated what function machine translation plays in non-native languages from the perspective of teachers' perceptions and attitudes. The study investigates how Brazilian teachers were prompted to place a great deal of emphasis on language acquisition and, as a result, research was conducted. According to the findings, learners, whether they are teachers or students, or simply consumers, must have a flexible mindset when it comes to participating to the conversation about learning new languages as a personal development process. It must help to foster a constructive mindset in Brazilian schools, colleges, and institutions.

In non-English speaking countries, Singh et al. (2017) emphasized the deep learning element of machine translation. The study goes into the repercussions and impacts of machine learning translation. For understanding machine translation, techniques such as recursive recurrent, terminologies such as deep neutral network, and technical aspects of hardware support must all be considered.

Because both the terms machine and human translation have a wide range of differences in general, a lot of the research done for literature review is done on an overall or to provide an overview of MT. The computerized aspects of translation have taken the form of software and other possibilities, so it is no longer primarily a machine, but it remains one of the sub-fields of translation. It cannot always work without the human intellect and actions. As a result, the human aspect is more important in deciding all other sub-fields. "It is an area of computational linguistics that examines the use of software to translate text or speech from one natural language to another," Hutchins (2003) expressed it eloquently. He believed that the world has been emotionally enjoying and using software for translating letters, words, and other objects from one language to another, and that both machines and humans have a role to play (Marito & Ashari, 2017).

Ashari and Shalehoddin (2019) voiced their worry when discussing the difficulties faced by non-English universities, teachers, and students throughout the machine translation process. Many idioms, symbols, human emotions, sign languages, and other factors could not be valued using machine learning. They went on to say that not all research and project work is done in English, and that not everything that is said, meant, or given is in English. They were actually against one-sided phenomena that favored one tongue over another. In the majority of cases, the intent to get accuracy is lost or unreliable.

A brief overview of foreign languages is presented, as well as the reasons for the use and abuse of machine translation in non-English speaking countries. How the subject is extensively researched while also being quite tedious in terms of investigation. It has a valuable effect and impact; however, it is repetitious and has a lot of similarities. Williams (2006) has stressed the ubiquitous problem of web-based machine translation (WBMT), and provided a detailed study in which the software can only grammatically correct texts, but the sometimes hidden prejudices and targeted objectives are lost in the implementation. In certain ways, it is still thought to be ineffectual.

Foreign language students have looked into many parts of MT as a CALL tool (Baraniello et al., 2016; Lewis, 1997; Luo, 2021). Writing, post-production editing, and various design and development are all taken into account. Self-direction, text interpretation, editing, and comparison concepts are all preserved. However, in the long run, the outcome results in some inaccuracies. It is too non-strategic, but it has a beneficial impact on reading, writing, and comprehension skills, as Lee (2020) suggests. Additionally, over the last few decades, only the demand for development and use has increased. It was unavoidable due to computational desire and power, and perceptions are divided into three components. Obviously, each component is necessary for understanding. However, overcoming disadvantages and empowering language acquisition is still the most important consequence. The study contrasts and targets the psychological human sense in which the concept of computer anxiety, tension in learning new activities, or anything computer-based is difficult. All of these are discussed in Doherty & Kenny's (2014) collaborative study.

"MT has been working to improve considerably over the last few decades as a result of expanded computational power and concurrent corpora," and this progress has managed to shift from string/word-based model types towards tree/based models and, in current history, towards deep learning/neural network-based models," mentioned by Turian, Shea, and Melamed (2006).

Kumar (2012) brought up a fascinating and little-known challenge: vocabulary acquisition. He looked at the case of 47 students who were meant to employ machine translation. According to the findings of the study, MT does not give ESL students with an effective approach for overcoming their fear of vocabulary. Later, this study was expanded (Kumar, Koehn, & Khudanpur, 2021) and it was claimed that it necessitates stronger cognitive human capacities and neural networks or corpus based data. Online translation technologies such as Google Translation (GT) and others are extensively employed since they give users with corpus-based data, but the reliability of these tools is questionable.

Many case studies based on primary data discuss the steps required in moving from speeches to texts and back again (Tymoczko, 2014; Vieira, O'Hagan, & O'Sullivan, 2021). In order to counteract practical results, the level of accuracy is monitored. Chandra and Yuyun (2018) were successful in examining their writing talents with only eight participants. The study also discovered that students choose Google Translation (GT) for three primary reasons: vocabulary, grammar, and spelling. As a result, the study demonstrates both the worth and the devaluation of translated texts or words, as well as software that was only used as a dictionary and did not provide a profound sense of facilitating the learning process (Alhaisoni & Alhaysony, 2017).

Zengin and Kacar (2011) did a study in which they interviewed roughly seventy-three EFL academicians from three Turkish institutions to determine whether or not translation procedures using MT are successful. The study indicated that academicians' reliance on the MT to teach English as a foreign language has been tough. Because of the limited sample size, it's difficult to say how well advanced MT technologies or established procedures have performed in translation classrooms for both students and teachers. The tertiary level was chosen, as were the potential problems that students might experience in putting it into practices for translation projects.

Objectives of the Study

1. To learn more about perspectives on the utilization and value of Machine Translation in the English language learning process.
2. To examine Arabic-speaking students' perceptions about the cross-cultural variations in EFL situation.
3. To understand how widely and effectively is MT employed at universities and other educational and non-educational institutions.
4. To determine the extent of agreement between students' perspectives and the obstacles they face during the implementation phase.

Problem statement

Machine translation is understood as the process of using artificial intelligence or CALL methods to automatically translate a text from one language to another without human involvement. However, it is yet to determine how accurate are such translations since the machine translator can never go back to check and weigh its translations nor does it have a pause-and-repeat function, where it can probe into what it translates. In other words, MT can neither achieve word-for-word accuracy from one language to another nor can it deliver a high percentage of accurate translation. There is still the need of a translator or an interpreter to edit the translation and bring it to the level of accuracy. The question that is often raised in critical circles is how to comprehend the importance of translating or interpreting as a discipline, or whether it is possible to define or clarify the positions of translator and interpreter, the differences between the two should be highlighted. It is also found necessary to devise

means of analyzing the impact of machine translation on Arab-speaking pupils, and what problems they face using MT to connect with one another in an EFL scenario (Ismail Omar, 2021; Ypinazar & Margolis, 2006). Academically, the university evaluation system would also like to ensure that the accuracy of the MT should satisfy the assessment parameters of the English language. Contextually, in among Arab speaking students, it is also often debated that translators serve as intercultural communication specialists, negotiators, and a link between civilizations, cultures, and ideas from a professional standpoint. Therefore, it is important to examine the role which the intercultural connections play in translation, and whether it is applicable to both international and societal contexts. The current study attempts to examine a few of these issues.

Methodology

- *Research design*

The sample of the study were the English language students who had attended at least two of the four translation courses available in the study plan of the Department of English and Literature of a premier Saudi university. Data was collected using a 5- Likert Scale type of questionnaire designed by the author of this study. This survey deemed to collect students' perceptions and attitudes toward using MT tools, the reasons for using those MT tools, their assessment of the MT outputs, and whether using those MT tools enhanced their language competencies. Google Forms were used for distributing the survey and receiving participants' responses. In the end, students' responses were analyzed and grouped, and descriptive statistics were carried out.

- *Participants*

This study included all the 153 (61 males and 82 females) undergraduate English major students of Prince Sattam bin Abdulaziz University (PSAU) who were in their fourth year at the Department of English in the academic year 2022. These groups of students have studied the four translation courses included in the study plan of the program presented in the department. All of them received the google drive survey, but only 78 students submitted their responses (32 males and 46 females). It was proposed that the students' academic achievement and language proficiency as measured by their university GPA played a sound effect on shaping their perceptions of MT. These GPAs were collected from the Registration Office of the university. All the data were coded on the SPSS program (release 16) to carry out the statistical calculation.

- *Data Collection: the questionnaire*

Following the Likert scaling system, a questionnaire was administered. The questionnaire consisted of two parts. The first part was intended to help the researcher manage the administrative part of data collection and scoring. The second part of the questionnaire deemed to collect the data related to the participants' perceptions of using MT applications in their daily life and for academic purposes. The participants' responses indicted their degree of agreement or disagreement on a five-point scale (1 strongly disagree, 2 disagree, 3 undecided, 4 agree, and 5 strongly agree) with each statement of the 26 items given to identify whether they use MT applications in their daily life and for academic purposes, in addition to their features that encourage them to implement or discourage them from implementing those applications in their daily life for academic or none academic purposes.

Twenty-five items were presented in the questionnaire to identify the positive feature of MT applications from the participants' perspectives. The first two items were included to show whether the participants use MT applications and to what degree (Table 1). While the second group of items aimed to identify the positive traits of MT applications that could have encouraged the participants to use those applications (Table 2), the third part intended to identify the negative traits of MT applications that could have discouraged them from using those applications for translation processes (Table 3) on each constituent item were coded on SPSS.

- *Data Analysis and Findings*

To analyze the data, the participants' responses on each constituent item of the questionnaire were coded on SPSS. Consequently, the responses to the first two items in the questionnaire were used to answer the first question of the questionnaire and the means of the responses as presented in Table 1, showed that almost all the male and female participants implemented MT applications to translate materials they are exposed to in their daily life and for academic purposes.

Table 1 *Participants' use of MT applications for academic and none academic purposes*

		Mean	N	SD	Mean	N	SD
					Total		
1. I use MT for academic purposes	Male	4.09	32	.296	4.26	78	.439
	Female	4.37	46	.488			
2. I use MT in my daily life for none academic purposes	Male	4.16	32	.847	4.04	78	.746
	Female	3.96	46	.665			

Responses to the group of items 3 to 14 (Table 2) were computed to identify the features of the MT applications that encouraged the Saudi undergraduate students of the Department of English at PSAU to use the translation applications. These responses would be used to shed the light on the probable positive perceptions of the participants of MT, and so to answer the second research question. In this regard, it would be important to explain that the means of responses would be used to indicate the participants' perceptions of MT. So, the means above (3) would be considered positive perceptions (agree and strongly agree); the means below (3) would be considered negative ones (disagree and strongly disagree); while a mean of (3) would be neutral - neither positive nor negative.

Table 2 *Participants' responses to the items showing the positive traits of MT (N=78)*

Statement	Minimum	Maximum	Mean	Std. Deviation
3. I use MT to find meanings of unfamiliar words	1	5	3.47	.922
4. I use MT to get the gist of a source text	1	5	3.72	1.031
5. I use MT to get the full meaning of a source text	1	5	3.72	.910
6. I use MT because it is faster than human translation	4	5	4.28	.453
7. Machine Translation is always available	2	5	4.10	.444
8. MT helps me learn meanings of new words	2	5	4.03	.509
9. MT saves my time and effort	1	5	3.74	.999
10. MT outputs are satisfactory to me	1	5	3.67	.935
11. MT outputs are of high quality	1	4	2.53	.963
12. MT outputs are better than my translation outputs	1	5	2.29	.927
13. MT improves my academic writing	2	5	3.88	.394

The participants' responses indicated that they use MT to find meanings of unfamiliar words and to learn meanings of new words (Item 3, mean: 3.47; Item 8: 4.03, respectively), to get the gist of source texts (Item 4, mean: 3.72), and to get the full meaning of source texts (Item 5, mean: 3.72). It was also noticed that one the most important traits of MT applications that the participants highly valued was related to the speed of accomplishing the translation process. In fact, they believed that MT applications could do the translation job faster than the participant themselves (Item 6, mean: 4.28). Additionally, availability of MT applications and being able to use them whenever needed was viewed by the participants as an important feature (Item 7, mean: 4.10).

Analysis of the data also showed that although the participants believed that MT applications save their time and effort (Item 9: mean 3.74), produce satisfactory translations (Item 10: mean 3.67), and help them improve their academic writing (Item 13, mean 3.88). They indicated on the other hand that MT could not produce translations of high quality (Item 11: mean 2.53) or even better than the participants' translations (Item 12: mean 2.29). Yet, responses of the participants showed that implementing MT applications would help them improve their academic writing (Item 13: mean 3.88).

Data analysis on the other hand also revealed that in spite of the positive traits presented above, MT translation outputs have negative features. As shown in Table 3, the participants agreed or strongly agreed that MT applications had problems in: choosing the equivalent meaning of some words (Item 15: mean 4.13); grammatical issues (Item 16: mean 4.26); using articles (Item 17: mean 3.62); using conjunctions (Item 18: mean 3.68); and in the word order of sentences (Item 18: mean 3.62).

Table 3 *Participants' responses to the items showing the negative traits of MT (N=78)*

Statement	Minimum	Maximum	Mean	Std. Deviation
15. MT outputs have a problem in choosing the equivalent meaning of some words	3	5	4.13	.406
16. MT outputs have grammar problems	2	5	4.26	.612
17. MT misuses the articles	2	5	3.62	.793
18. MT misuses conjunctions	2	5	3.68	.712
19. MT abuses word order in sentences	2	5	3.62	.777
20. MT outputs abuse style	2	5	3.87	.493
21. MT outputs misuses punctuation marks	2	4	3.06	.998
22. MT outputs do not give the appropriate meaning deemed in the source text	2	4	3.64	.755
23. MT outputs need reviewing and post editing	2	5	3.85	.685
24. Much time and effort are needed to review and post edit MT outputs	2	5	3.60	.843

The participants also perceived that MT outputs abuses the style of source texts (Item 20: mean 3.87), misuses punctuation marks (Item 21: mean 3.06), and they do not give the appropriate meaning deemed in source texts (Item 22: mean 3.64). Consequently, the participants' responses to Items 23 and 24, were consistent with their perceptions of MT in general. They thought that MT outputs need to be reviewed and post edited, and so, much time and effort are needed to do this job of translation (Item 23: mean 3.85, and Item 24: mean 3.60, respectively). As a result of their positive perceptions of MT, and in spite of the negative traits of it, the all participants clarified that they would recommend students to implement MT for their benefits as shown in Table 4, (Item 25: mean 4.27).

Table 4 *Participants' responses to the items showing the negative traits of MT (N=78)*

Statement	Minimum	Maximum	Mean	Std. Deviation
25. I would recommend MT to students	4	5	4.27	.446

To find out if there was a significant difference between the perceptions of the Saudi undergraduate students at the Department of English about MT according to their gender, the t-test of independent variables was carried out. Results of the t-test as shown in Table 6, indicated the differences in the participants' perceptions of MT ($p < 0.019$), in favor of the female participants since the mean of their responses (91.63) was bigger than that of the males' responses (89.38), Table 5.

Table 5 *Responses of male and female participants to the questionnaire*

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Sum of responses	Male	32	89.38	4.470	.790
	Female	46	91.63	3.814	.562

Table 6 *Independent Samples t-Test*

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Sum of responses	Equal variances assumed	2.374	.128	-2.393	76	.019	-2.255	.943	-4.133	-.378
	Equal variances not assumed			-2.325	59.788	.023	-2.255	.970	-4.196	-.315

To find out if there was a relationship between the perceptions of the Saudi undergraduate students at the Department of English about MT and their academic achievement as indicated by their GPAs, Pearson correlation was calculated. As displayed in Table 7, the significant negative correlation of (-.238) at ($p < 0.036$) indicated that the higher the students' level of academic achievement (GPA), the lower their perception of MT would be.

Table 7 *Pearson correlation between participants' MT perceptions and their academic achievement (N=78)*

Correlations			
		GPA	Sum of responses
GPA	Pearson Correlation	1	-.238*
	Sig. (2-tailed)		.036
Sum of responses	Pearson Correlation	-.238*	1
	Sig. (2-tailed)	.036	

*. Correlation is significant at the 0.05 level (2-tailed).

Discussion and Conclusion

Machine Translation is important, according to studies, since without it, the system would collapse and natural non-English speakers would have no alternative. This study backs up a hypothesis that was supported by a thorough literature assessment and a qualitative knowledge of the inextricable link between machine translation, language learning, and Arab regions. In non-EFL countries, the possibilities and applicability of machine translation are stronger, and demand is always high, especially in Arab countries. It is used to detect not just MT usage and abuse, but also a variety of other aspects such as terminology, psychological attributes, languages, subculture, conceptions, and other variables. These students use MT in the ELT classroom on a routine basis for projects and reports. As a result, while certain places support the

use of machine data transformation at universities, this transformation has lost contact with the English language, its true meaning, and its history. As a result, while certain places promote the use of machine data transformation in colleges, this transformation has lost contact with the English language, its genuine meaning, and historical analysis. In such translations, the native language's value is occasionally lost in the implementation process.

The use of machine translation (MT) among EFL students is unavoidable, and it has been fraught with difficulties throughout the translation process. Many studies reviewed in the study show that Arabic speakers experience numerous vocabulary issues, including determining the true meaning of words. As a result, there exist researches that indicate how to deal with the problem without updating the translation system. Many qualitative and quantitative literature evaluations recommend having a number of respondents who represent both portions of the process: one who is a non-native English language speaker and another who is a native English language speaker record their experiences and obstacles. The study's findings indicate ways to bridge the gap between the actual meaning supplied after translation and the intended meaning. There must be no gaps or ambiguities in words, texts, metaphors, symbols, and so forth. Several researches support the notion that Machine Translation is not a trustworthy method based on actual data. Though the essence of the problem remains the same, the primary translation objective has been met. Machine translation's sensitivity and successful utilization are, in the end, unavoidable in Arab regions.

Acknowledgement:

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