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Teaching Translation through Machine Translation and Hybrid Approach: An Experimental Study at the Intermediate Level

Abstract

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Keywords: Translation Studies, Teaching Translation, Grammar Translation Method, Machine Translation, Teaching Methodology, Comparative Study, Intermediate Level

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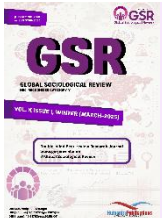

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Title

Teaching Translation through Machine Translation and Hybrid Approach: An Experimental Study at the Intermediate Level

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Contents

Abstract

Teaching translation through the Grammar Translation Method (GTM) has been a usual practice throughout the world. In the contemporary period, especially after the AI revolution in the world, machine-based translations are also being rendered at a large scale. This study has explored the phenomenon of the use of Machine Translation in teaching translation from Urdu to English and vice versa. A questionnaire was developed for data collection, other than the execution of pre-test and post-test. There were 60 female students at a private college who were selected as respondents through purposive sampling. Students were divided into experimental groups 1& 2. Each group was taught translation through different methods: Machine Translation (MT) and juxtaposition of both MT and GTM. Data was analyzed both quantitatively and qualitatively. It was found that the combo of GTM & MT is more beneficial for teaching interlingual translations. However, students from semi-rural areas were found to be more comfortable with GTM.

Keywords: Translation Studies, Teaching Translation, Grammar Translation Method, Machine Translation, Teaching Methodology, Comparative Study, Intermediate Level

Introduction

The fundamental transformation in translation studies that has taken place recently is a consequence of the amazing progress that MT technology has accomplished. The most recent algorithms combined with AI-driven technologies have increased accessibility and efficiency in technology. With the advent of specialized software like Google Translate

(GT), machine translation has become an essential tool for personal and professional use. Opinions regarding the quality and dependability of these tools are still split, despite their speed and ease of use, especially when compared to Human Translation (HT). However, Doherty (2016) asserts that human translations are the source from which machine translations are created. Additionally, they do better in languages that share a family and are closely linked to one another, suggesting some degree of resemblance (Munkova et al. 2021).

The motive of this research was to see whether the students from semi-rural areas, who have less exposure to technology, would feel comfortable with translation taught through MT, or whether they would be more satisfied with the combination of both (MT+GTM).

Research Questions

1. What is the effect of MT based teaching on students' proficiency in translation from Urdu to English and vice versa?
2. What is the effect of GTM and MT based teaching on students' proficiency in translation from Urdu to English and vice versa?

Literature Review

People in today's world tend to communicate in a number of languages across international borders, thus increasing ambiguity in understanding and deciphering cross-cultural communication. This language targeting gap emphasizes the need to rely on an effective translation in order to overcome perceived and real language obstacles, given the differences between source and target languages. Since translation entails more than simply switching words from one language to another, it requires a thorough understanding of both the source and target languages. It may comprise communicating ideas and meanings while accounting for cultural eccentricities (Putri, 2019). Culture has an impact on language translation (Shea, 2022; Horbačauskienė et al., 2016). Translators working from source to target must have a solid grasp of both the source and target languages' background knowledge to effectively transmit cultural traditions into the target language's present culture (Mohebbi, 2023).

Machine Translation

Machine translation automatically turns source text into destination text using extensive software language analysis, except in rare cases when humans are required. Hutchins and Somers (1992) identified four categories for human and machine translation.

a) Human Translation (HT).
b) Machine-Assisted Human Translation (MAHT).
c) Human-Assisted Machine Translation (HAMT).
d) Fully Automatic Machine Translation (FAMT).

MT approaches have evolved from a direct approach to modern rule-based or example-based, statistical systems or hybrids that are becoming increasingly widespread. In the early 1950s, the direct approach relied on a lexicon-based paradigm. To correctly detect word endings and reduce inflected forms to their base forms, the SL (Source Language) input was initially subjected to basic morphological analysis. The second phase involved looking up dictionary definitions to discover TL (Target Language) word equivalents. Using local reordering criteria, the intended word order can be altered to create a more pleasing pattern. Later, in the 1970s and 1980s, transfer-based or rule-based procedures were used to define SL language structures and how they projected onto the TL, allowing for more in-depth linguistic study with varying levels of linguistic skill (Hutchins & Somers, 1992). This approach is divided into three steps: (1) analysis, which entails transforming an SL sentence's surface form into an abstract representation related to the SL's language features; (2) transfer, which entails mapping this representation for the SL to that for the TL; and (3) generation, which entails converting a TL sentence's abstract representation back into its surface form (Wong, 2008).

Machine Translation and Human Translation

The two fields of MT and HT have developed separately for almost as long as they have existed. Automatization may have originated from attempts

by certain academics to explain translation using formal linguistic terms early in the histories of both areas (Catford, 1965), for example, the "cultural turn" in HT moved the discipline's emphasis further from linguistic detail and toward MT. Despite their gathering and analysis, the fields in the 1990s mostly used the corpora and the parallel corpora in particular for a variety of purposes, despite a shared interest in empirical data. For example, HT studies of translation universals seem to have yielded empirical results unrelated to MT (Baker, 1993). This barrier includes, among other things, the lack of language and conceptual similarity between HT and MT. While speaking, HT is more comfortable talking about concepts like function and culture than MT, who prefers to employ models. Nonetheless, HT scholars usually contribute to large-scale MT activities, and there is a shared interest in translation quality assessment (TQA). One result of the German Verbmobil project, for example, is the volume Machine Translation and Translation Theory (Hauenschild and Heizmann, 1997), which includes various studies on HT and how it could inform MT. This also applies to more contemporary projects like CAMSACAT, which employed translation process research to inform the development of a Computer-Assisted Translation (CAT) tool, and QT Launch Pad, which assessed translation quality (Koehn et al., 2015). Error analysis is one area of great interest. In her analysis, O'Brien (2012) showed that all eleven translation companies used error typologies and weightings. Additional data showed that several categories were included in most, if not all, of the taxonomies. She concludes, however, that error analysis is insufficient and sometimes just false. This is because it fails to take a complete approach to the text and its purpose, ignoring elements such as text type, function, and user demands. Several other assessment methods are suggested, including usability, adequacy, and fluency ratings, as well as readability evaluation. In the context of MT, error analysis can be useful in alerting developers to the primary problems and users to potential consequences. A taxonomy that has grown in favor in Montana is (Vilar et al., 2006). Additionally, efforts have been made toward automatic error classification to lessen the necessity of contacting human assessors each time an error analysis is required (Popovic & Burchardt, 2011). Even while comparing machine translation versus human translation just based on the number of errors may seem pointless, it might be useful to show many types of errors that can occur. It follows that we must accept the possibility of intentional categorization changes. Another area of research focuses on how processes and tools affect translations. This subject remains relatively understudied despite several relevant studies (see, for instance, Jimenez-Crespo (2009); Koltunski (2013); and Besacier & Schwartz (2015).

Research Methodology

It is an experimental study, and researchers used mixed methods for data collection and analysis. It was meant to see whether the students of a semi-rural area like Sohawa would feel comfortable while they were taught translation from Urdu to English or vice versa through Machine Translation or the hybrid approach (Machine Translation + Grammar Translation Method) would be more suitable for them.

Theoretical Framework

The theoretical framework used for this study was Bloom's Taxonomy. The element of creativity, which is part of high-order thinking skills (HOTS), was linked to the translation productivity of the students after thorough teaching and instructions. The students were taught how to translate through MT and MT+GTM in addition to their prior knowledge and assessed in terms of their translation creativity/productivity. The creativity was judged based on two different translation tools from the perspective of the scientific phenomenon known as cause and effect.

Data Collection

The data was collected both qualitatively and quantitatively. To get quantitative and qualitative data on basic translational processes, language fluency, and grammatical understanding,

etc., the researchers conducted a pre-test, a post-test, and a survey.

Participants and Sampling Technique

All the participants were from almost the same educational background, and they were students of intermediate classes at Greenview Islamic Girls College, Sohawa, District Jhelum. The total number of participants was 60. All of them were divided into two groups as Experimental Group 1 and Experimental Group 2 and were taught with MT and GTM+MT, respectively. The purposive sampling technique was used to collect data. All the participants were female students in the age bracket of 16-18 years. Keeping in view the research ethics, all the participants were thoroughly briefed about the purpose and procedure of the research, and all of them were given consent forms to sign and submit to the researcher.

Tools

There were several tools that were used to collect, measure, and analyze the data. To collect the data quantitatively, a questionnaire was designed in view of the literature review. It comprises 15 items developed on a Likert Scale. Another tool was pre- and post-tests that were given to the students to assess their existing knowledge while translating from Urdu to English or vice versa, and the improvement they had after the experiment. Google Translate was used as a teaching tool for Experimental Group 1. As far as Experimental Group 2 was concerned, they were taught through both MT and GTM.

Data Analysis

According to Abdullah (2015), SPSS is a comparatively better option for the analysis of the data collected through a questionnaire. He has also used item-by-item analysis in his study. The same technique was considered the most suitable one for the present study by the researchers. Therefore, item-by-item analysis of the questionnaire is produced in the following for a better understanding of the data:

Item-by-Item Analysis

Item No: 1

Table 1

Frequencies of Responses by Experimental Group 1

I feel that after using MT, I have become good at translating Urdu to English and vice versa.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	14	46.7	46.7	46.7
	Strongly Agree	14	46.7	46.7	93.3
	Strongly Disagree	2	6.7	6.7	100.0
	Total	30	100.0	100.0	

The table above displays the responses related to machine translation (MT). In this case, 46.7% of participants agreed, and 46.7% strongly agreed that MT has enhanced their translation skills. However, 6.7% of respondents strongly disagreed, suggesting that they had a more complex perspective on MT.

Figure 1

Graphical Visualization of Responses of Item 1 by Experimental Group 1

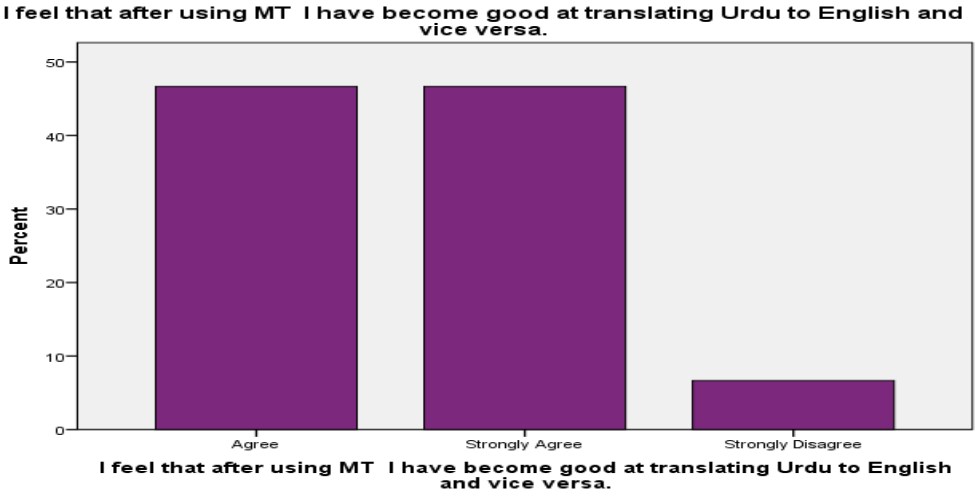


Table 2

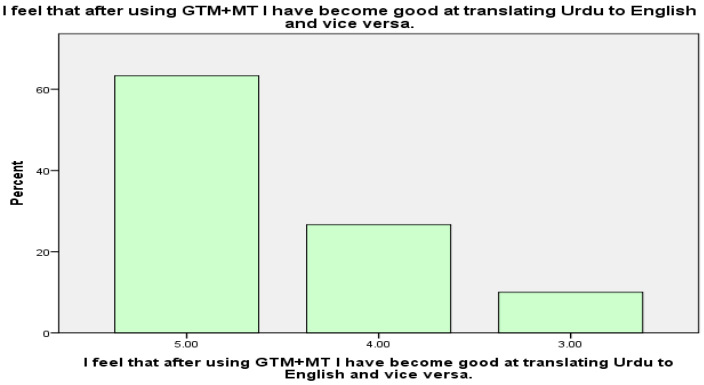
Frequencies of Responses by Experimental Group 2

I feel that after using GTM+MT, I have become good at translating Urdu to English and vice versa.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	19	63.3	63.3	63.3
	A	8	26.7	26.7	90.0
	U	3	10.0	10.0	100.0
	Total	30	100.0	100.0	

This table evaluates the use of both MT and GTM together to teach translation. Remarkably, 26.7% of respondents rated their experience as a 4, showing agree, while 63.3% gave it a favorable grade of 5, indicating strongly agree. Only 10% of students chose options here or lower, showing "undecided" or lower on the Likert Scale, indicating that they understand how the two techniques work well collectively.

Figure 2

Graphical Visualization of Responses of Item 1 by Experimental Group 2



Item No: 2

Table 3

Frequencies of Responses by Experimental Group 1

I feel that using MT enhanced my understanding of the translation of tenses.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	15	50.0	50.0	50.0
	Strongly Agree	13	43.3	43.3	93.3
	Disagree	1	3.3	3.3	96.7
	Undecided	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

The table examines the responses provided by the experimental group 1 that used Machine Translation (MT) for the understanding of tense translation. 50% of participants said that MT improved their understanding of tense translation, with 43.3% strongly agreeing. However, the level of uncertainty was a little greater, with 6.6% of respondents expressing confusion or disagreement, suggesting a similar but somewhat less distinct view of MT.

Figure 3

Graphical Visualization of Responses of Item 2 by Experimental Group

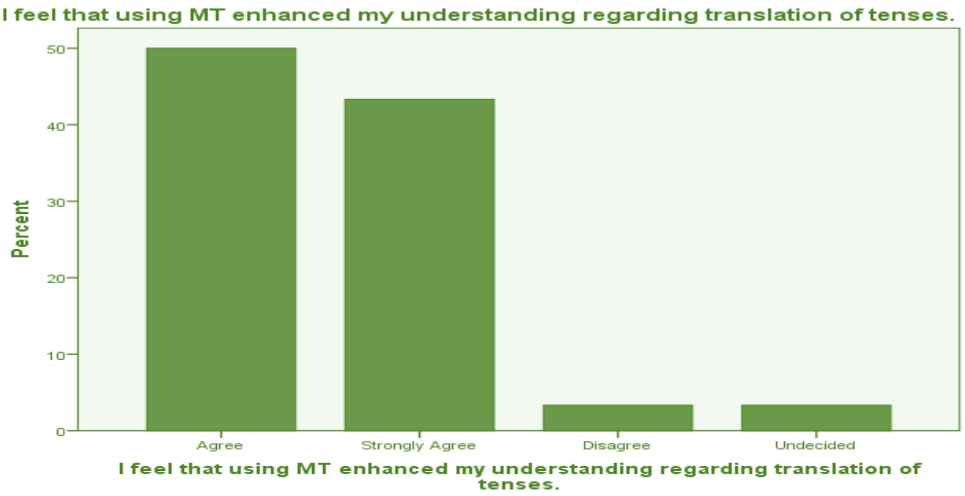


Table 4

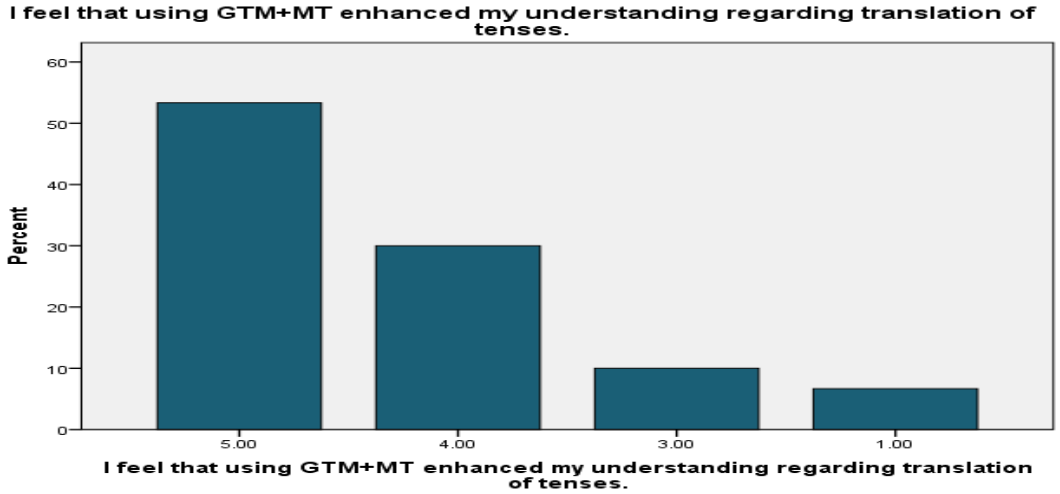
Frequencies of Responses by Experimental Group 2

I feel that using GTM+MT enhanced my understanding of the translation of tenses.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	16	53.3	53.3	53.3
	A	9	30.0	30.0	83.3
	U	3	10.0	10.0	93.3
	SD	2	6.7	6.7	100.0
	Total	30	100.0	100.0	

Together, MT and GTM have an impact on tense translation comprehension, as shown in this table. In this instance, 53.3% of respondents rated their experience favorably at a 5, whilst 30% rated it at a 4. Only 16.7% of students ranked it lower than 4, indicating that most of them believed the combination improved their understanding of tense translation.

Figure 4

Graphical Visualization of Responses of Item 2 by Experimental Group 2



Item No: 3

Table 5

Frequencies of Responses by Experimental Group 1

I feel that MT helped me to understand sentence structures in a better way for better translation.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	19	63.3	63.3	63.3
	Strongly Agree	8	26.7	26.7	90.0
	Strongly Disagree	1	3.3	3.3	93.3
	Disagree	1	3.3	3.3	96.7
	Undecided	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

The above table evaluates the impact of machine translation (MT) on understanding sentence structure. In this instance, 26.7% of subjects highly agreed and 63.3% felt that MT improved their understanding, since only 6.6% disagreed or were unclear, showing a general agreement with MT's competence in this area.

Figure 5

Graphical Visualization of Responses of Item 3 by Experimental Group 1

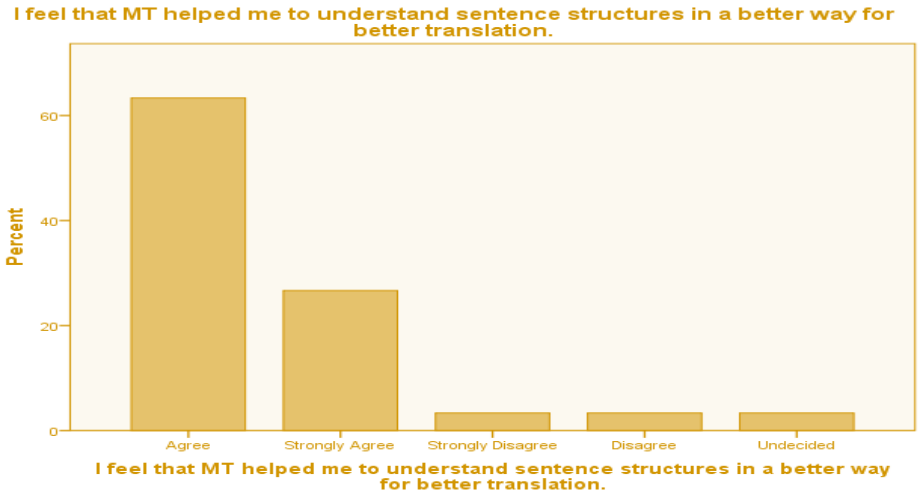


Table 6

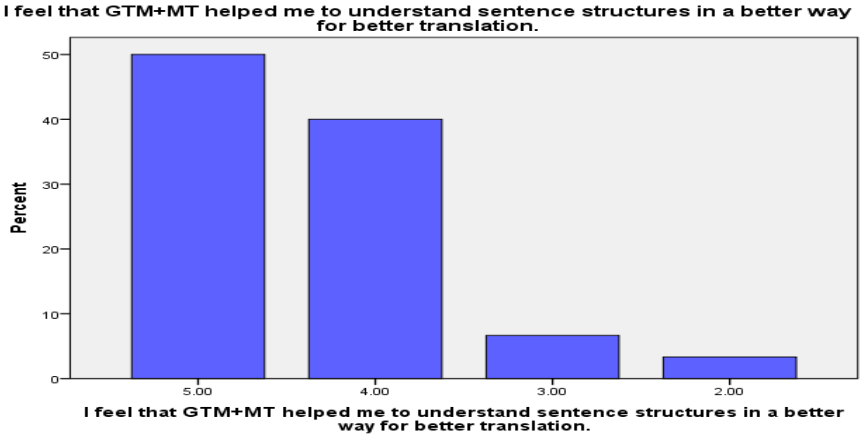
Frequencies of Responses by Experimental Group 2

I feel that GTM+MT helped me to understand sentence structures in a better way for better translation.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	15	50.0	50.0	50.0
	A	12	40.0	40.0	90.0
	U	2	6.7	6.7	96.7
	D	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

This table looks at the effects of using both GTM and MT on understanding sentence structure. In this case, 50% rated their experience favorably at a 5, and 40% rated it at a 4. Only a tiny percentage gave it a lower score, indicating that students understand the benefits of integrating the two strategies to enhance their understanding of sentence structures.

Figure 6

Graphical Visualization of Responses of Item 3 by Experimental Group 2



Item No: 4

Table 7

Frequencies of Responses by Experimental Group 1

I feel that MT assisted me better for translating the complex sentences					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	14	46.7	46.7	46.7
	Strongly Agree	12	40.0	40.0	86.7
	Disagree	2	6.7	6.7	93.3
	Undecided	2	6.7	6.7	100.0
	Total	30	100.0	100.0	

This table evaluates how well Machine Translation (MT) works to translate complex sentences. 46.7% of individuals said they felt MT was helpful, with 40% strongly agreeing. Once more, the fact that so few people (6.7%) disagreed or were unsure shows that MT is seen favorably when it comes to translating complicated sentences.

Figure 7

Graphical Visualization of Responses of Item 4 by Experimental Group 1

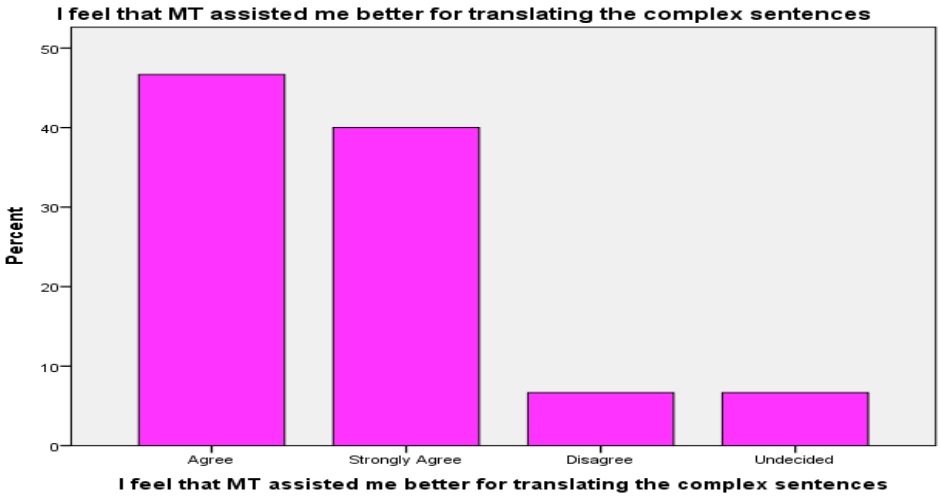


Table 8

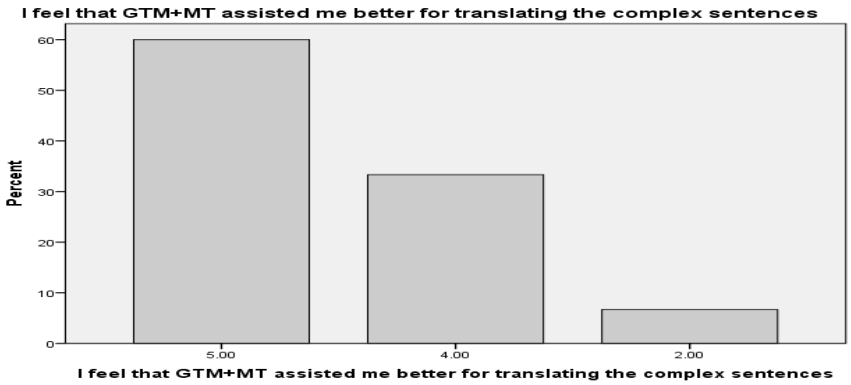
Frequencies of Responses by Experimental Group 2

I feel that GTM+MT assisted me better for translating the complex sentences					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	18	60.0	60.0	60.0
	A	10	33.3	33.3	93.3
	D	2	6.7	6.7	100.0
	Total	30	100.0	100.0	

This table evaluates the combined impact of utilizing both GTM and MT to translate complex words. In this instance, 60% rated their experience as good, with 33.3% giving it a score of 4. Few students rated it as less than 4, suggesting that students thought combining the two methods to be very helpful when dealing with complex sentences.

Figure 8

Graphical Visualization of Responses of Item 4 by Experimental Group 2



Item No: 5

Table 9

Frequencies of Responses by Experimental Group 1

I feel that MT assisted me better for translating the compound sentences.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	12	40.0	40.0	40.0
	Agree	10	33.3	33.3	73.3
	Undecided	5	16.7	16.7	90.0
	Disagree	2	6.7	6.7	96.7
	Strongly Disagree	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

The table examines the impact of machine translation (MT) on challenging sentence translation. Here majority of the respondents (40%) strongly agreed whereas 10 out of 30 agreed to the statement. The remaining 16.7 % were found undecisive and 10% disagreed or strongly disagreed with the proposition.

Figure 9

Graphical Visualization of Responses of Item 5 by Experimental Group 1

Table 10

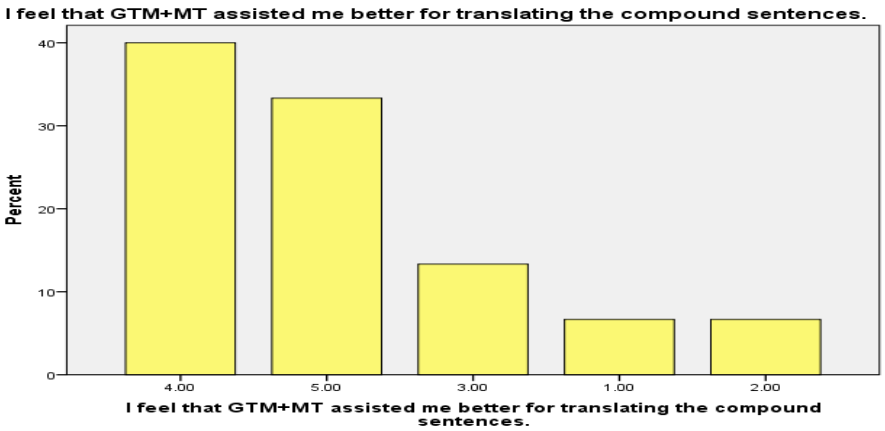
Frequencies of Responses by Experimental Group 2

I realize that the hybrid approach (GTM+MT) helps comparatively better for rendering the translation of compound sentences.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A	12	40.0	40.0	40.0
	SA	10	33.3	33.3	73.3
	U	4	13.3	13.3	86.7
	SD	2	6.7	6.7	93.3
	D	2	6.7	6.7	100.0
	Total	30	100.0	100.0	

The table above examines the combined effect of utilizing both GTM and MT to translate compound sentences. In this case, 40 percent rated their experience as a 4, while 33.3% rated it as a 5. Fewer students scored it lower than 4, indicating that although they like the combined method, they are not as passionate about it as they are about other techniques.

Figure 10

Graphical Visualization of Responses of Item 5 by Experimental Group 2



Item No: 6

Table 11

Frequencies of Responses by Experimental Group 11

I feel that MT helped me to translate clauses in a better way.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	15	50.0	50.0	50.0
	Agree	12	40.0	40.0	90.0
	Strongly Disagree	1	3.3	3.3	93.3
	Disagree	1	3.3	3.3	96.7
	Undecided	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

Machine Translation (MT) impacts clause translation, as seen in the second table. In this instance, 50% of participants strongly agreed and 40% felt that MT was beneficial. 3.3% of respondents were undecided, while just 6.6% disagreed. This suggests that MT is popular and seen as helpful for translating clauses.

Figure 11

Graphical Visualization of Responses of Item 6 by Experimental Group 1

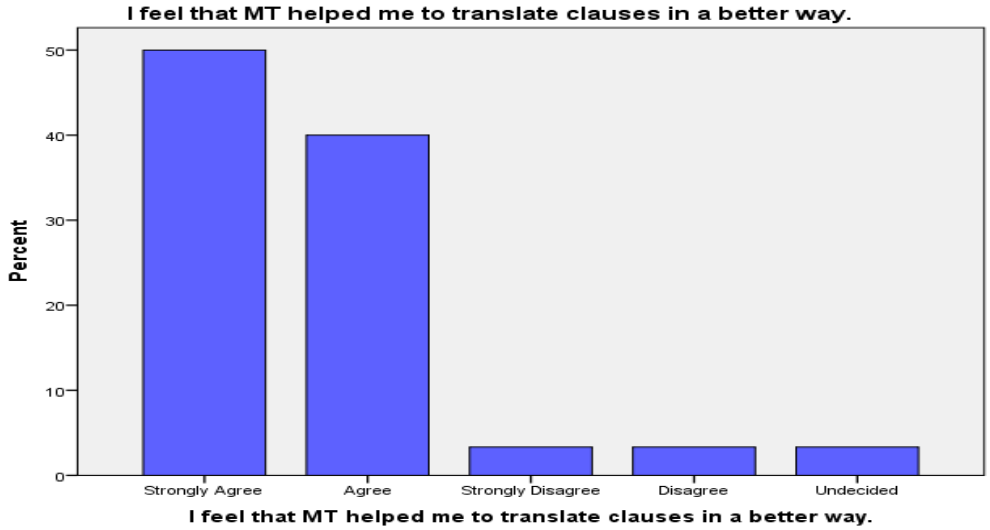


Table 12

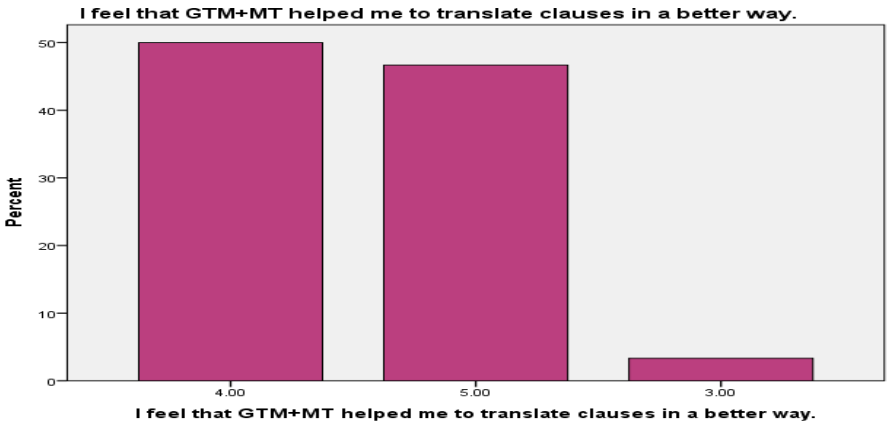
Frequencies of Responses by Experimental Group 2

I feel that GTM+MT helped me to translate clauses in a better way.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A	15	50.0	50.0	50.0
	SA	14	46.7	46.7	96.7
	U	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

The above given table examines the combined effect of both GTM and MT translations of clauses. In this case, 50% rated their experience as good, with 46.7% giving it a score of 5. Only one respondent rated it lower than 3, indicating that the combined strategy was generally excellent.

Figure 12

Graphical Visualization of Responses of Item 6 by Experimental Group 2



Item No: 7

Table 13

Frequencies of Responses by Experimental Group 1

I feel that MT helped me to translate phrases in a better way:					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	15	50.0	50.0	50.0
	Agree	6	20.0	20.0	70.0
	Undecided	5	16.7	16.7	86.7
	Strongly Disagree	4	13.3	13.3	100.0
	Total	30	100.0	100.0	

This table evaluates how Machine Translation (MT) affects phrase translation. In this case, 20% of respondents agreed and 50% strongly agreed that MT was helpful. The remaining 16.7% were found undecisive whereas 4 out of 30 strongly disagreed to the statement.

Figure 13

Graphical Visualization of Responses of Item 7 by Experimental Group 1

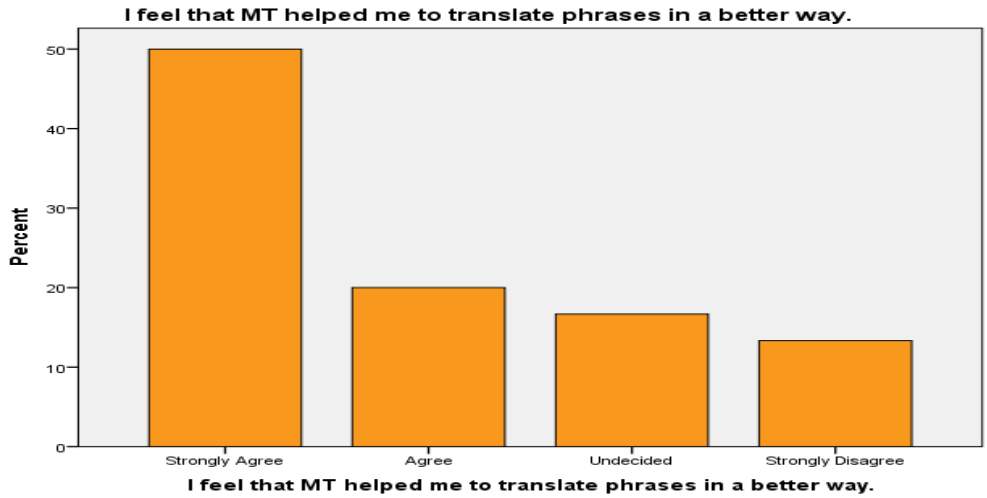


Table 14

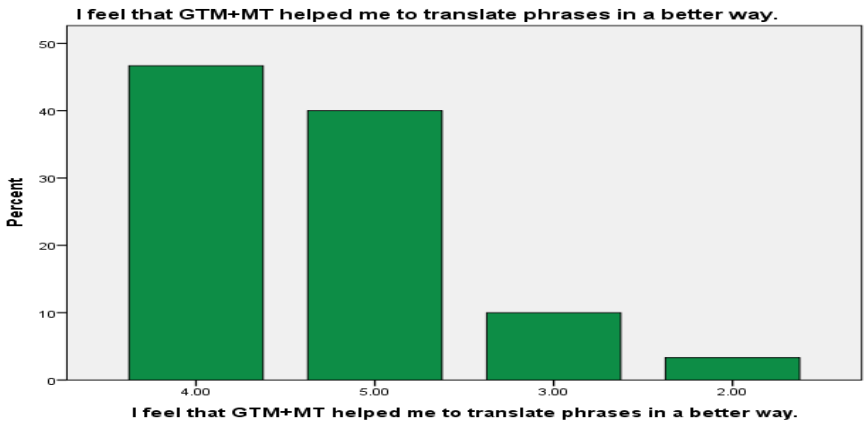
Frequencies of Responses by Experimental Group 2

I feel that GTM+MT helped me to translate phrases in a better way.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A	14	46.7	46.7	46.7
	SA	12	40.0	40.0	86.7
	U	3	10.0	10.0	96.7
	A	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

The table examines the combined effect of employing both GTM and MT when translating phrases. In this instance, 46.7% rated their experience as great, and 40% gave it a score of 5. Few students had a score lower than 3, suggesting that they think applying both approaches improves their ability to translate phrases.

Figure 14

Graphical Visualization of Responses of Item 7 by Experimental Group 2



Item No: 8

Table 15

Frequencies of Responses by Experimental Group 1

I feel that MT helped me understand the use of articles (a, an, the) in translation.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	17	56.7	56.7	56.7
	Strongly Agree	9	30.0	30.0	86.7
	Disagree	3	10.0	10.0	96.7
	Strongly Disagree	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

This table assesses the impact of machine translation (MT) on the ability to understand translated articles. Overall, 56.7% of respondents believed that MT benefited them, with 30% strongly agreeing. However, 13.3% disagreed or strongly disagreed, indicating that views on the value of MT in this regard differ.

Figure 15

Graphical Visualization of Responses of Item 8 by Experimental Group 1

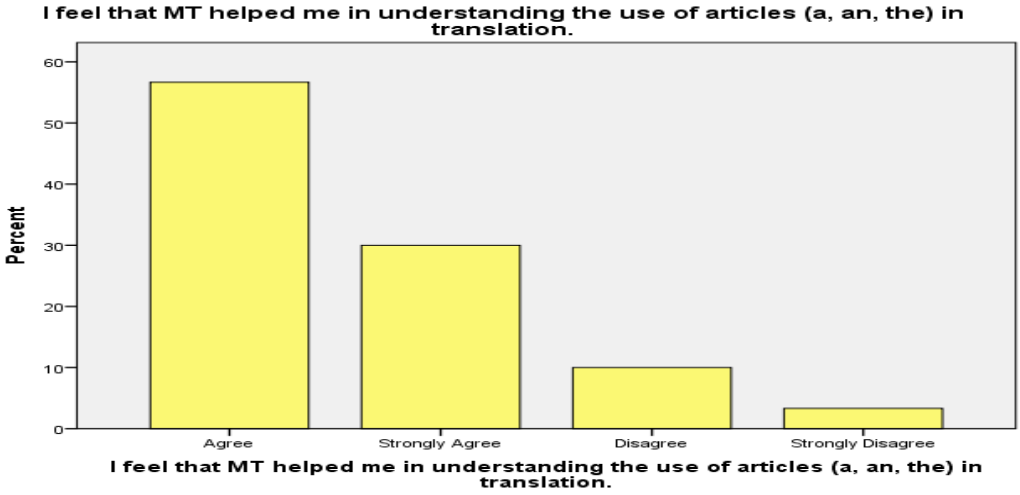


Table 16

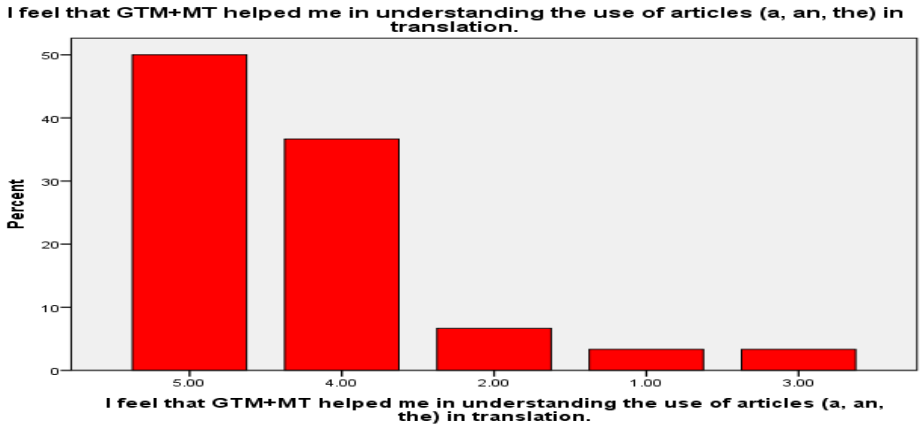
Frequencies of Responses by Experimental Group 2

I feel that GTM+MT helped me in understanding the use of articles (a, an, the) in translation.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	15	50.0	50.0	50.0
	A	11	36.7	36.7	86.7
	D	2	6.7	6.7	93.3
	SA	1	3.3	3.3	96.7
	U	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

The table looks at the combined impact of MT and GTM on translating articles. In this case, 36.7% gave their experience a rating of 4, while 50% gave it a favorable rating of 5. Less than 3% of students gave it a score below three, indicating that they believe both methods are excellent for teaching them how to use articles.

Figure 16

Graphical Visualization of Responses of Item 8 by Experimental Group 2



5.1.9 Item No: 9

Table 17

Frequencies of Responses by Experimental Group 1

I feel that MT clarified my understanding of prepositions and their usage in translation.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	19	63.3	63.3	63.3
	Strongly Agree	5	16.7	16.7	80.0
	Strongly Disagree	3	10.0	10.0	90.0
	Disagree	3	10.0	10.0	100.0
	Total	30	100.0	100.0	

This table analyzes the impact of machine translation (MT) on understanding of prepositions. In this case, 63.3% of participants agreed and 16.7% strongly agreed that MT clarified their understanding. There is considerable disagreement as well because 10% of respondents disagreed and 10% strongly disagreed.

Figure 17

Graphical Visualization of Responses of Item 9 by Experimental Group 1

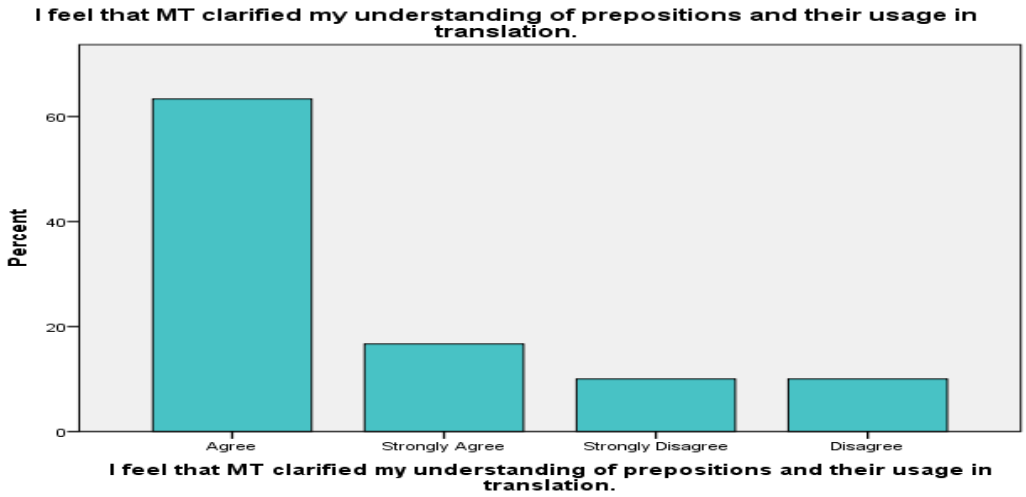


Table 18

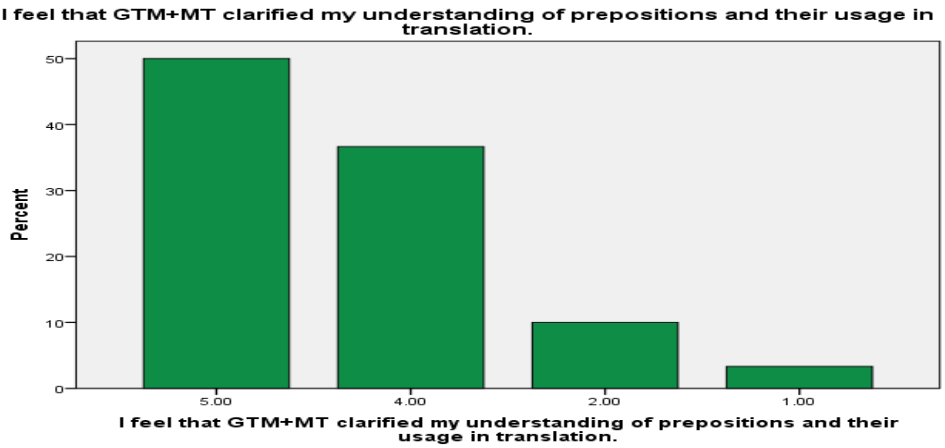
Frequencies of Responses by Experimental Group 2

I feel that GTM+MT clarified my understanding of prepositions and their usage in translation.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	15	50.0	50.0	50.0
	A	11	36.7	36.7	86.7
	D	3	10.0	10.0	96.7
	SD	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

This table examines how using GTM and MT at the same time in combination may improve understanding the usage of prepositions. In this case, 50% rated their experience favorably at a 5, and 36.7% rated it at a 4. The fact that so few students rated it below three indicates that most students thought the combination was helpful for learning how to deal with prepositions while translating English to Urdu or vice versa.

Figure 18

Graphical Visualization of Responses of Item 9 by Experimental Group 2



Item No: 10

Table 19

Frequencies of Responses by Experimental Group 1

I feel that MT improved my understanding of nouns for translation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	10	33.3	33.3	33.3
	Strongly Agree	7	23.3	23.3	56.7
	Undecided	6	20.0	20.0	76.7
	Disagree	5	16.7	16.7	93.3
	Strongly Disagree	2	6.7	6.7	100.0
	Total	30	100.0	100.0	

The table above analyzes the impact of machine translation (MT) on understanding of nouns. In this specific case, only 33.3% of participants believed that MT improved their understanding, and only 23.3% strongly agreed. Almost 20% expressed uncertainty, and 23.4% disagreed or strongly disagreed, suggesting a more complex perception of machine translations.

Table 20

Frequencies of Responses of Experimental Group 2

I realize that hybrid approach (GTM+MT) helped me to improve my understanding of rendering translation of nouns more effectively.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	13	43.3	43.3	43.3
	A	12	40.0	40.0	83.3
	D	3	10.0	10.0	93.3
	SD	1	3.3	3.3	96.7
	U	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

The tabulated data highlights the effectiveness of hybrid approach in terms of rendering translation of nouns from Urdu to English or English to Urdu. Here a significant number of participants affirms the statement whereas a negligible number of participants does not agree to the proposition of item number 10.

Figure 20

Graphical Visualization of Responses of Item 10 by Experimental Group 1

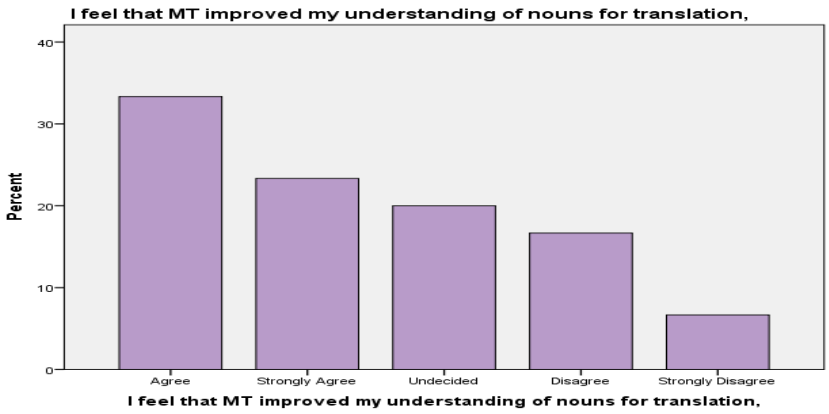
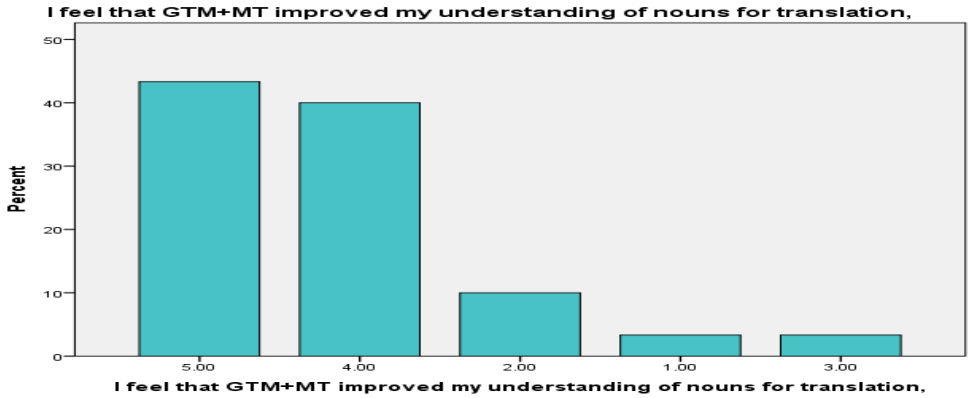


Figure 21

Graphical Visualization of Responses of Item 10 by Experimental Group 2



Item No: 11

Table 21

Frequencies of Responses Experimental Group 1

I realize that machine based translation has helped me comparative better for translation of verbs.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	16	53.3	53.3	53.3
	Strongly Agree	13	43.3	43.3	96.7
	Undecided	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

The tabulated data highlights that a highly significant number of participants agreed/strongly agreed to the statement. There was no disagreement and only one participant stood indecisive.

Figure 22

Graphical Visualization of Responses of Item 11 by Experimental Group 1

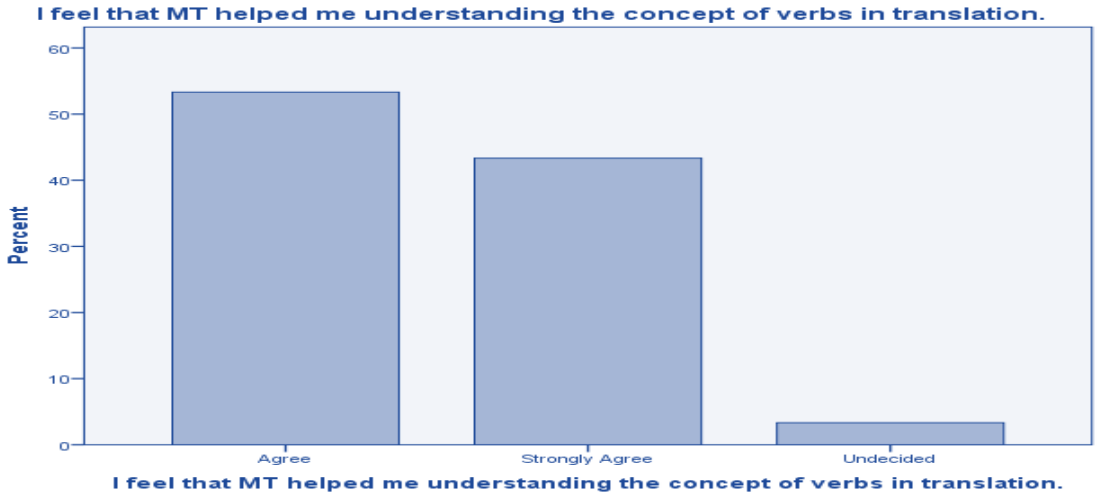


Table 22

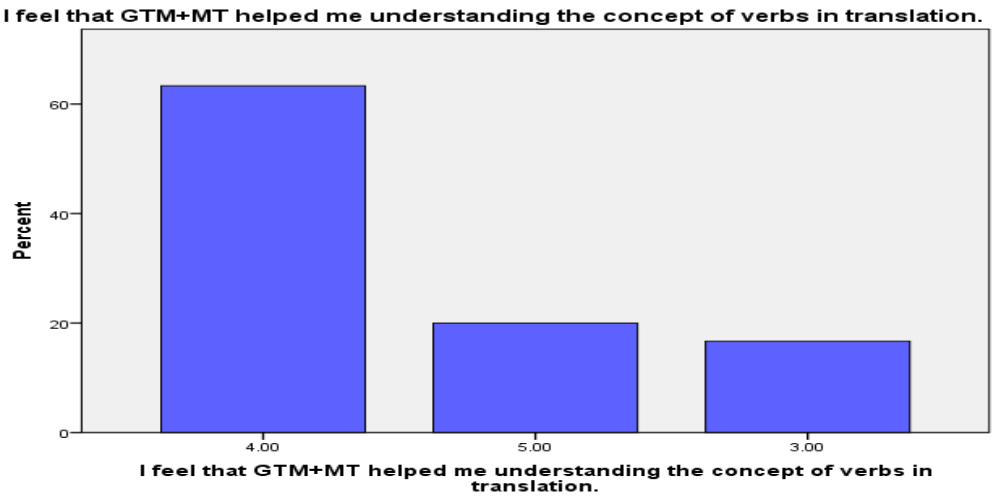
Frequencies of Responses by Experimental Group 2

I confirm that hybrid approach have really helped me to translate the verbs in the perspective of their conceptual understanding.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A	19	63.3	63.3	63.3
	SA	6	20.0	20.0	83.3
	U	5	16.7	16.7	100.0
	Total	30	100.0	100.0	

The tabulated data highlights that a highly significant number (25) of participants agreed/strongly agreed to the statement. There was no disagreement and only 05 participant stood indecisive.

Figure 23

Graphical Visualization of Responses of Item 11 by Experimental Group2



Item No: 12

Table 23

Frequencies of Responses by Experimental Group 1

I confirm that machine-based translation has facilitated me comprehending the aspect of grammar in the process of translation.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	15	50.0	50.0	50.0
	Strongly Agree	7	23.3	23.3	73.3
	Undecided	4	13.3	13.3	86.7
	Strongly Disagree	3	10.0	10.0	96.7
	Disagree	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

The tabulated data highlights that a significant number (22) of participants agreed/strongly agreed to the statement. There was one disagreement, 3 out of 30 strongly disagreed and only four participants stood indecisive.

Figure 24

Graphical Visualization of Responses to Item 12 by Experimental Group 1

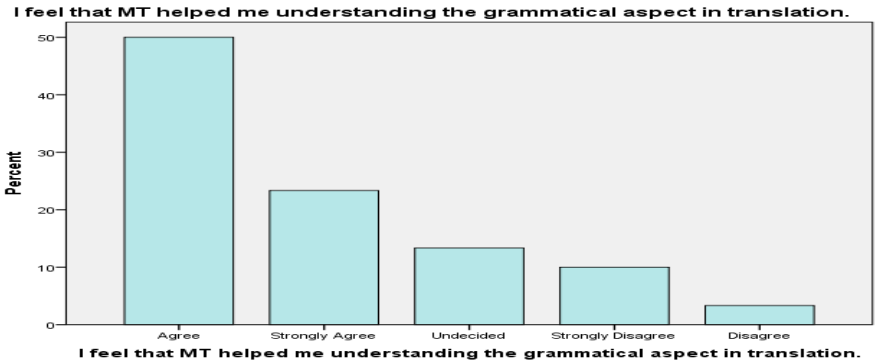


Table 24

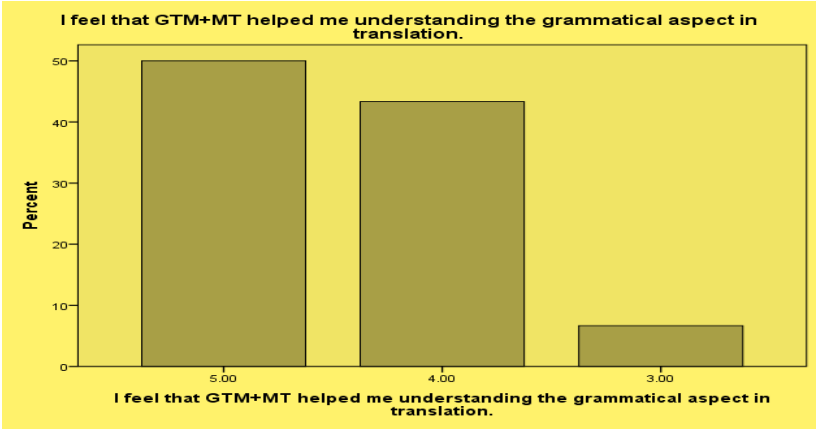
Frequencies of Responses by Experimental Group 2

I feel that GTM+MT helped me understand the grammatical aspect in translation.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	15	50.0	50.0	50.0
	A	13	43.3	43.3	93.3
	U	2	6.7	6.7	100.0
	Total	30	100.0	100.0	

This table of item 12 examines how using both GTM and MT in parallel will help in your understanding of translation grammar. In this case, 50% rated their experience favorably at a 5, while 43.3% rated it at a 4. Few students rated it lower than 3, indicating that the majority of students believe the combo is effective for grammar acquisition.

Figure 25

Graphical Visualization of Responses of Item 21 by Experimental Group 2



Item No: 13

Table 25

Frequencies of Responses by Experimental Group 1

I feel that MT helped me in comparing rules of grammar in both languages for translation.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	19	63.3	63.3	63.3
	Strongly Agree	7	23.3	23.3	86.7
	Undecided	2	6.7	6.7	93.3
	Strongly Disagree	1	3.3	3.3	96.7
	Disagree	1	3.3	3.3	100.0

The table assesses the impact of Machine Translation (MT) on the comparison of the two languages' grammatical rules. In this case, 63.3% of respondents believed that MT improved their ability to make these comparisons, and 23.3% strongly agreed. Just 10% disagreed or were unclear, suggesting that most individuals had a positive assessment of MT's value in this area.

Figure 26

Graphical Visualization of Responses of Item 13 by Experimental Group 1

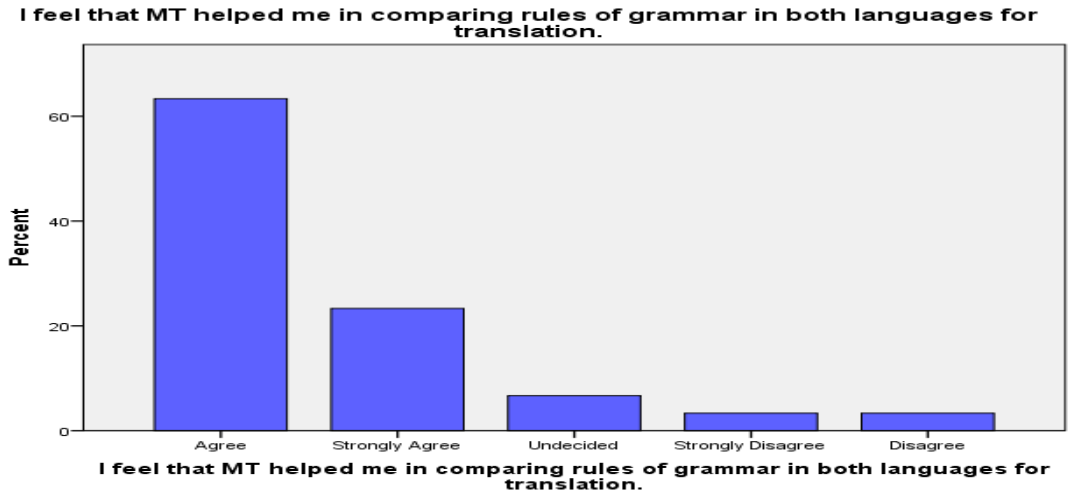


Table 26

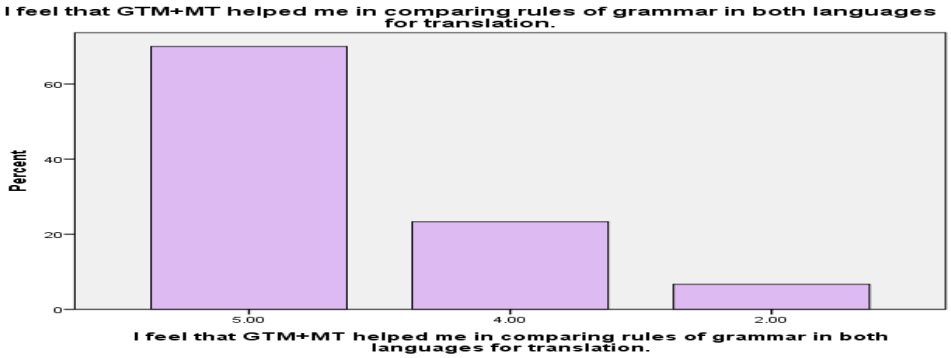
Frequencies of Responses by Experimental Group 2

I feel that GTM+MT helped me in comparing rules of grammar in both languages for translation.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	21	70.0	70.0	70.0
	A	7	23.3	23.3	93.3
	D	2	6.7	6.7	100.0
	Total	30	100.0	100.0	

The tabulated data highlights that a highly significant number (28) of participants agreed/strongly agreed to the statement. There was no disagreement and only two participant stood indecisive.

Figure 27

Graphical Visualization of Responses of Item 13 by Experimental Group 2



Item No: 14

Table 27

Frequencies of Responses by Experimental Group 1

I realize that machine-based translation helped me to understand the semantic aspect of translation quite easily.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	19	63.3	63.3	63.3
	Strongly Agree	9	30.0	30.0	93.3
	Strongly Disagree	2	6.7	6.7	100.0
	Total	30	100.0	100.0	

This tabulated data highlights that a highly significant number (28) of participants agreed/strongly agreed to the statement. There was no disagreement and only two out of thirty participants strongly disagreed to the proposition of item number 14.

Figure 28

Graphical Visualization of Responses of Item 14 by Experimental Group 1

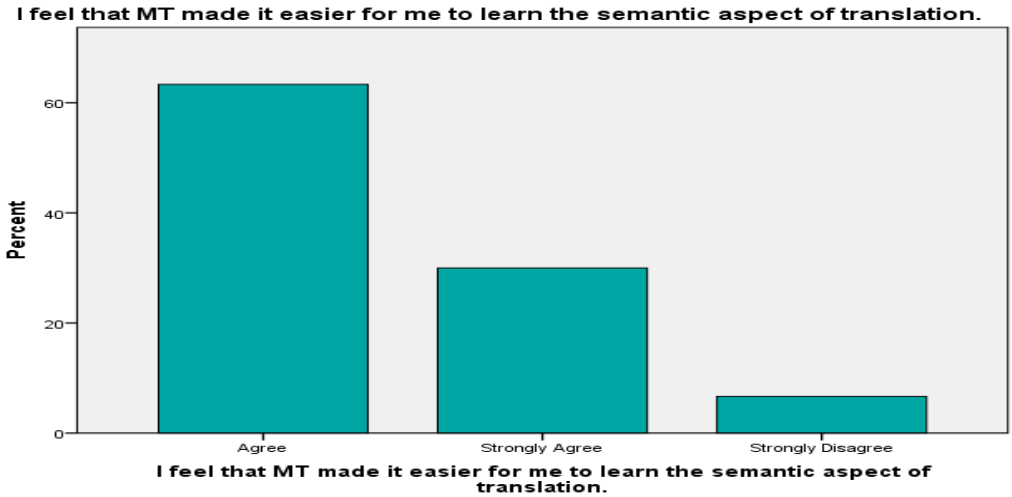


Table 28

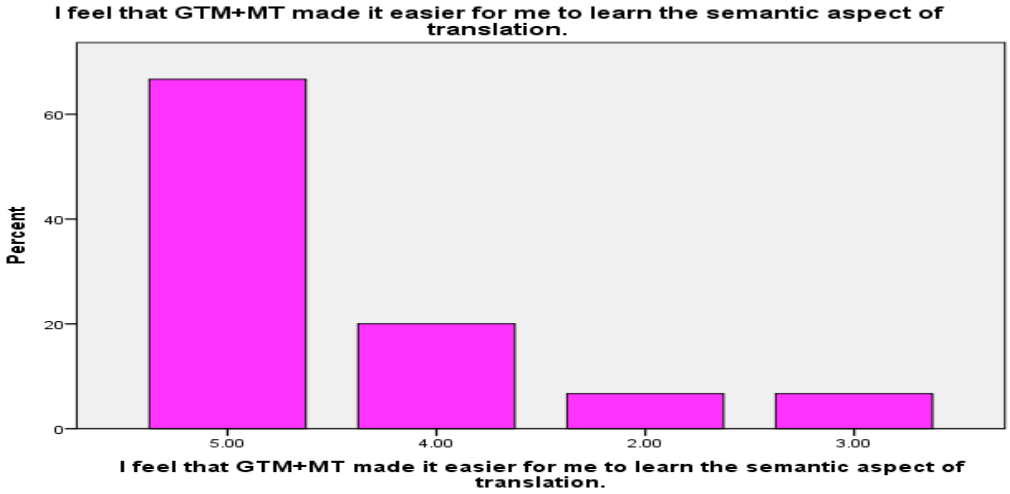
Frequencies of Responses by Experimental Group 2

I realize that hybrid approach (GTM+MT) helped me to understand the semantic aspect of translation quite easily.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	20	66.7	66.7	66.7
	A	6	20.0	20.0	86.7
	SD	2	6.7	6.7	93.3
	U	2	6.7	6.7	100.0
	Total	30	100.0	100.0	

The tabulated data highlights that a highly significant number (26) of participants agreed/strongly agreed to the statement. There was no disagreement, two out of thirty strongly disagreed and only two participants stood indecisive.

Figure 29

Graphical Visualization of Responses of Item 14 by Experimental Group 2



5.1.15 Item No: 15

Table 29

Frequencies of Responses by Experimental Group 1

I realize that machine-based translation approach in teaching translation has enhanced my conviction in rendering a translation from Urdu to English or English to Urdu.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Agree	11	36.7	36.7	36.7
	Agree	8	26.7	26.7	63.3
	Undecided	5	16.7	16.7	80.0
	Disagree	4	13.3	13.3	93.3
	Strongly Disagree	2	6.7	6.7	100.0
	Total	30	100.0	100.0	

The tabulated data highlights that a significant number (19) of participants agreed/strongly agreed to the statement. There were four disagreements, two out of thirty strongly disagreed and only five participants stood indecisive.

Figure 30

Graphical Visualization of Responses of Item 15by Experimental Group 1

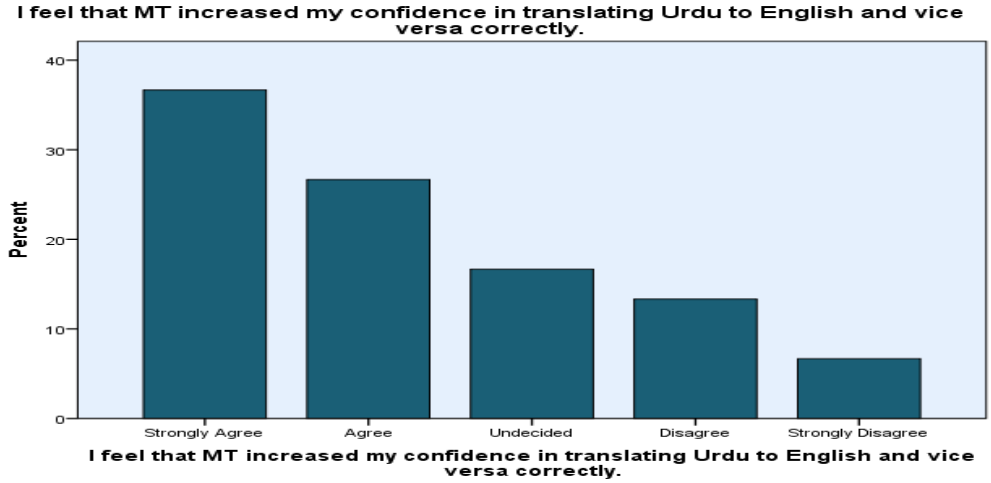


Table 30

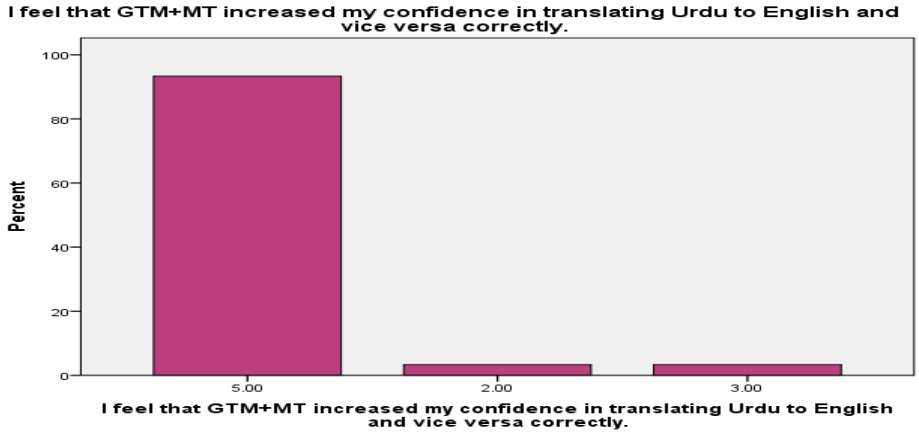
Frequencies of Responses by Experimental Group 2

I realize that hybrid (MT+GMT) approach in teaching translation has enhanced my conviction in rendering a translation from Urdu to English or English to Urdu.					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SA	28	93.3	93.3	93.3
	D	1	3.3	3.3	96.7
	U	1	3.3	3.3	100.0
	Total	30	100.0	100.0	

The tabulated data highlights that a highly significant number (28) of participants strongly agreed with the statement. There was one disagreement and only one participant stood indecisive.

Figure 31

Graphical Visualization of Responses of Item 15 by Experimental Group 2



Analysis of Pre & Post-Tests of Experimental Group 1&2

The pre-test results indicated that although students of Experimental Group 1 understood the language and grammar required for translation, they were not aware of the potential applications of technology. Many students were eager to learn more about this innovative method but were unclear about how to apply it. Because they were not sure of how well they could incorporate technology into their work, they originally hesitated to complete assigned tasks that could be completed with the help of MT technologies. Students were reluctant to utilize MT because they did not want to depend on something they had never used before, even though they wanted to learn more about it. Furthermore, the post-test data showed that experimental group 1 did not indicate the expected growth and enhanced learning after being subjected to MT technologies. As they started using these tools in addition to more conventional methods like GTM during practice sessions, some of the students gradually became used to using technology for translation work. When translating from Urdu to English, participants of Experimental Group 2 discovered a unique manner that merged GTM and MT together. They were attracted to this because, in one method, they could teach structured grammar classes using technology, and in another, they could receive immediate feedback. The pre-test revealed that students performed well on nouns and verbs but struggled with clauses and complex structures, illustrating these differences in performance. First, this group's vocabulary included a variety of basic terms that some students employed as well as a very high degree of other phrases. However, students performed better in the post-test as compared to the pretest.

Conclusion

The study finally reported that there was an apparent increase in the students' ability to use complex grammatical constructions, such as the improvement in compound and complex sentences by almost 87 percent, and a rise to 78 percent was seen in the enhancement of understanding of phrases and clauses. Similarly, 80 percent improvement ratio was seen in understanding of prepositions and articles while translating one language into another. The engagement and confidence level of the experimental Group 2 was up to the mark as they were actively participating and showing more interest in learning through MT & GMT together (a hybrid approach).

Findings

1. The lack of technological literacy was affecting the progress of the students from Experimental Group 1.
2. The mixed method approach (GTM+MT) provided exceptional outcomes in terms of both student engagement and creativity in translating in Experimental Group 2.

Limitations of the Study

1. Mobile Phones were not allowed for the

students, so the researcher had to take prints of all the text translated through Google Translate.
2. Computer Lab was not allowed to be used for purpose of the study, nor were the required number of systems available.
3. Administration as well as students at the college were a little reluctant to be a part of this kind of activity being done in semi-rural areas for the first time.

Recommendations

1. Educational institutes of the semi-rural areas where students are not with strong academic backgrounds in Urdu and English must adopt mixed method approach to teach translation. It should be gradually implemented. Proper assessments and feedback from the teachers and students should be taken frequently.
2. Along with traditional methods of teaching translation there should be a specific session in teacher training programs where teachers can improve their own technology literacy. They should also be taught the importance of the usage of technology in different pedagogical settings.

Curriculum developers should design it in a flexible way that may not be causing perplexity for the students if they want to switch from one approach to another particularly while practicing translations.

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