

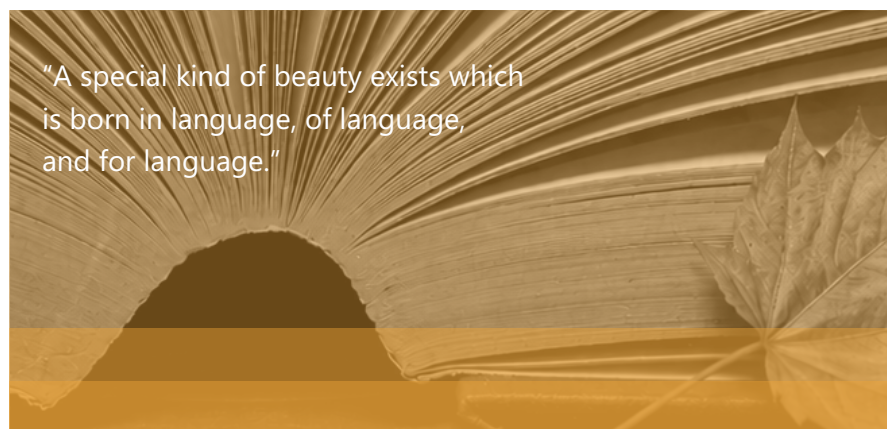


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"A special kind of beauty exists which
is born in language, of language,
and for language."



**UZBEKISTAN STATE WORLD
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Direct and multi-level machine translation: Korean-Uzbek and Korean-English-Uzbek language pairs

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Annotation *This pilot study compares direct Korean-Uzbek machine translation with a pivot-based Korean-English-Uzbek workflow for a low-resource language pair. Two Korean public-information texts, divided into ten long segments, were translated using Google Translate and ChatGPT. The outputs were examined manually using selected Multidimensional Quality Metrics categories accuracy, fluency and style and were then compared using the automatic metric BLEU. Manual annotation identified fifteen errors in the direct output and four errors in the pivot-based output. However, the reported BLEU scores were higher for the direct workflow in both texts (41.21 versus 22.98; 46.53 versus 8.91). Manual and automatic evaluation therefore produced opposite rankings. The discrepancy shows that surface n-gram overlap and human judgments of meaning and naturalness measure different aspects of translation quality, and that a single metric is insufficient for this language pair. Because the dataset is small and the evaluation settings are incompletely documented, the findings are exploratory rather than generalizable.*

Keywords *Direct machine translation, pivot translation, Korean-Uzbek translation, ChatGPT, Google Translate, MQM, BLEU*

Bevosita va ko'p darajali mashina tarjimasi: koreys-o'zbek va koreys-ingliz-o'zbek til juftliklari

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Annotatsiya *Ushbu pilot tadqiqot koreys tilidan o'zbek tiliga bevosita mashina tarjimasi bilan koreys-ingliz-o'zbek tayanch til vositasidagi tarjima jarayonini qiyoslaydi va resurslari cheklangan til juftligi uchun qaysi yo'l ishonchliroq ekanini aniqlashga qaratilgan. Tadqiqot ikki baholash usulining natijalarini bir-biriga qiyoslashga asoslangan. O'nta yirik segmentga ajratilgan ikki koreyscha axborot matni Google Translate va ChatGPT yordamida tarjima qilindi. Natijalar Multidimensional Quality Metrics tizimining aniqlik, ravonlik va uslub kategoriyalari asosida qo'lda tahlil qilindi hamda BLEU ko'rsatkichi orqali avtomatik baholandi. Qo'lda tahlilda bevosita tarjimada o'n besh, tayanch til orqali olingan tarjimada esa to'rt xato aniqlandi. Biroq BLEU natijalari har ikki matnda ham bevosita tarjima uchun yuqoriroq bo'ldi (41,21 ga nisbatan 22,98; 46,53 ga nisbatan 8,91). Demak, qo'lda va avtomatik baholash qarama-qarshi reyting berdi. Bu farq n-gramma mosligi hamda ma'no va tabiiylikka oid inson bahosi tarjima sifatining turli jihatlarini o'lchashini, bitta ko'rsatkichning o'zi esa yetarli emasligini ko'rsatadi. Ma'lumotlar hajmi kichik va baholash sozlamalari to'liq qayd etilmaganligi sababli natijalar dastlabki xulosa sifatida talqin qilinishi lozim.*

Kalit so'zlar *Bevosita mashina tarjimasi, tayanch til orqali tarjima, koreys-o'zbek tarjimasi, ChatGPT, Google Translate, MQM, BLEU*

Прямой и многоуровневый машинный перевод: корейско- узбекская и корейско-англо- узбекская языковые пары

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Аннотация *В пилотном исследовании сопоставляются прямой машинный перевод с корейского языка на узбекский и перевод по схеме корейский–английский–узбекский с использованием языка-посредника; цель определить, какой из двух маршрутов надёжнее для языковой пары с ограниченными ресурсами. Работа построена на сопоставлении результатов двух способов оценки качества. Два корейских информационных текста, разделённые на десять крупных сегментов, были переведены с помощью Google Translate и ChatGPT. Результаты проанализированы вручную по категориям точности, беглости и стиля системы Multidimensional Quality Metrics, а также оценены автоматической метрикой BLEU. При ручном анализе выявлено пятнадцать ошибок в прямом переводе и четыре ошибки в переводе через язык-посредник. Однако показатели BLEU в обоих текстах оказались выше для прямого перевода (41,21 против 22,98; 46,53 против 8,91). Следовательно, ручная и автоматическая оценки дали противоположные результаты. Это расхождение показывает, что совпадение n-грамм и экспертная оценка смысла и естественности отражают разные аспекты качества перевода и что одной метрики недостаточно. Из-за малого объёма материала и неполного описания настроек оценки результаты следует считать предварительными.*

Ключевые слова *Прямой машинный перевод, перевод через язык-посредник, корейско-узбекский перевод, ChatGPT, Google Translate, MQM, BLEU*

Introduction

Translation is a substituting textual material in one language with similar textual material in another language (Catford, 1965). When translating, the translator must be cautious because a mistranslation might cause meaning from the source language to be lost in the target language, resulting in a less pleasant translation output (Iftitah & Kuswardani, 2021). If the MT system already knows the words in the text, the intervention

can sometimes be avoided. Several inconsistencies can be identified inside the Machine translator without human input. Machine Translation can be studied in a variety of ways. Machine translation, also known as MT (not to be confused with computer-aided translation, machine-aided human translation (MAHT), or interactive translation), is a type of automated translation. This study, which is related to Machine Translation analysis, aims to provide an example of how to do an MT

analysis. This study also intends to provide more information about MT so that it can be considered before employing the system as translation help. As a machine translation tool, Google Translate and ChatGPT were employed in this search.

Literature review

According to House (2009), translation is the process of rewriting a text in one's own language. The scholars use Google Translate to tackle their problems. Google Translate (GT) is one of many interpretation machines accessible to web users as a free service from Google. Google Translate may be the answer to humanity's failure to master new languages. It is quite useful for users to translate foreign languages that are tough to understand. According to Jin and Deifell (2013) survey, Google Translate is one of the most popular on-line dictionary used by students. GT is a form of neural machine translation that can automatically translate one piece of text into 133 languages. As of May 2022, Google put up additional 24 new languages spoken by more than 300 million people on its Google Translate platform. There is more than 1 billion people who use a multilingual neural machine translation service developed by Google (EarthWeb, n.d.). The most common language translations which users put on Google Translate's prompt are English, Spanish, Arabic, Russian, Portuguese, and Indonesian. Although there are numerous advantages, there are also some disadvantages. When using Google Translate to directly translate Korean into Uzbek, the output may have some issues. Google Translate utilizes algorithms to provide instant translations, but it may not account for contextual nuances or idiomatic expressions, leading to potential inaccuracies or loss of meaning. The lack of a human touch and cultural understanding may result in translations that sound mechanical or unnatural to native Uzbek speakers.

MT-systems applied to specialized texts and allowed a training period, have managed to produce quite acceptable results, and they

are now used to speed up the translation process. Furthermore, recent developments in Neural Machine Translation (NMT) produce even better results. Google, Yandex and Microsoft started using a Neural Machine Translation (NMT) system in 2015, i.e., OpenNMT, released by the Harvard NLP Group. In August 2017, the new NMT system DeepL was launched, showing a performance that exceeded expectations, and which was much discussed in social media (Varela Salinas & Burbat, 2023).

The main ChatGPT is an artificial intelligence chatbot developed by OpenAI. ChatGPT, launched in November 2022, is based on the GPT (Generative Pre-trained Transformer) architecture. The main features of ChatGPT are the ability to question and answer, solve mathematical equations, create text (academic, literary articles, etc.), debug and correct, summarize text, find keywords in texts, classify, make suggestions, explain what anything does, and develop software. Another feature of ChatGPT is that it can translate in different languages (English, Spanish, French, Turkish, Russian, etc.) ChatGPT is the major language model (LLM). Large Language Models (LLM) are trained with large amounts of data and can accurately predict which word should be in a sentence. It was discovered that increasing the amount of data helps language models increase their ability to do more. It was discovered that ChatGPT's performance is comparable to that of commercial translation systems for high-resource European languages, but it is much worse for languages with little available resources or those are located far away (Işım & Balcıoğlu, 2023).

- **Direct Machine Translation (DMT)**

This approach enables machine translation systems to translate from one language, known as the source language (SL), to another, known as the target language (TL). The SL words are translated without the need of an additional/intermediary representation. The examination of SL texts is limited to one TL. Direct translation systems are primarily

bilingual and unidirectional in nature. A minimal amount of syntactic and semantic analysis is required for the direct translation strategy. SL analysis is focused on producing representations that are acceptable for a single TL. DMT is a word-for-word translation method with some minor grammatical modifications. This division of machine translation architectures into direct, transfer and interlingua systems follows the standard typology of the field (Hutchins & Somers, 1992).

- **Translating Korean into Uzbek**

Machine translation (MT) has been subject to considerable technological advances in the past decade, with the result that it is now deployed as a computer aid in many translation settings. With further advances and promises of higher quality through neural MT, it can be expected that MT will become an even more prevalent technology and that professional translators will be compelled to engage with MT technology is under rapid development and is, therefore, highly emergent (Cadwell, O'Brien & Teixeira, 2018). Uzbek is a morphologically rich language with nouns, adjectives and verbs inflected for case, number and forms of the words. This property requires introducing morphological information inside the MT system to handle the lack of many inflectional forms. It is momentous to create formal grammar of Uzbek for machine translation. (Sharipov & Salaev, 2022).

- **Multi-level translation (Ko-Eng-Uz)**

Translation therefore does not simply involve substituting single terms with their alleged synonyms, nor does it involve comparing sign-systems per se. Instead, it involves confronting textual situations against a background of different (partial) encyclopedias, that is, of specific forms of socially and culturally shared knowledge set in different historical situations (Baker, 1998). The multilevel translation approach provides a more refined and contextually appropriate translation. It allows for a deeper understanding of the source text and ensures

that the target audience can grasp the intended meaning accurately. By incorporating an intermediary language, it allows for a smoother transfer of information and helps overcome language-specific challenges that may arise during translation. When translating from Korean to English, the translator considers not only the words but also the cultural context and idiomatic expressions specific to both languages. English, being a widely used international language, offers a broader range of resources and references that can be utilized to ensure a more accurate and natural translation. In machine translation research this design is known as the pivot-language approach; it is normally applied when parallel data for the source-target pair is scarce, and its main risk is that errors introduced at the first stage are carried into the second (Wu & Wang, 2007).

Methodology

In this study, we look at the outcomes of two Korean texts that were translated into Uzbek in two different approaches. The first technique is to use Google to translate the Korean text into Uzbek, while the second method is to use ChatGPT to translate Korean into English. Checking for Error based on DQF/MQM Error Typology and comparing the results to human translation. Then, using the bleu metric to evaluate three types of machine translations. Both text are informative text, first one is about Uzbekistan collaboration with KOFIH, second one is about cooperation between Korea and Uzbek. Errors were annotated with the categories of the Multidimensional Quality Metrics framework (Lommel, Uszkoreit & Burchardt, 2014), while the automatic evaluation relied on BLEU, which measures n-gram overlap between the candidate translation and a reference (Papineni, Roukos, Ward & Zhu, 2002).

[Text 1]

2023.6.12(월)

한국국제보건의료재단(KOFIH, 김희은 소장)은
우즈베키스탄 응급의료인력훈련센터에

심폐소생기 등 이동식 교육장비 8종 161개를 지원하는 기증식을 개최하였습니다. 국장현 공사참사관은 이번에 기증된 교육장비를 통해 우즈벡 응급구조사의 응급의료서비스 역량 강화와 실전 훈련의 기회가 확대되어 우즈벡 국민들에게 보다 나은 응급의료 서비스가 제공되기를 기대한다고 하였습니다. KOFIH와 함께 우즈벡 응급의료 구조사분들 전문적인 능력이 계속 개발되기를 바랍니다.

[Text 2]

김희상 대사는 5.3.(수) 우무르자코프 주재국 신임 타슈켄트시장 대행을 예방하고, 양국 수도간 교류협력 증진방안 및 우리 기업의 우즈베키스탄 진출방안에 대해 논의했습니다.

우무르자코프 시장은 김 대사의 방문을 환영하며, 그간 양국 정상들의 노력으로 긴밀해진 양국간 우호협력 관계가 교통, 산업경제, 보건의료, 관광 등 다양한 분야에서 더욱 발전해 나가기를 기대한다고 하였습니다. 또한 우무르자코프 시장은 나날이 발전하고 있는 타슈켄트시에 한국 기업들이 보다 많이 진출하기를 희망하며 적극적으로 지원하겠다고 하였습니다.

김 대사는 우무르자코프 시장의 환대에 감사를 표하고 서울시와 타슈켄트시 양국 수도간의 교류협력이 활성화될 수 있도록 최선을 다하겠다고 하였습니다. 아울러 타슈켄트 서울공원 정비사업을 비롯한 타슈켄트시 권역에서 시행되고 있거나 시행 예정인 다수의 ODA사업이 차질없이 진행될 수 있도록 시장의 관심과 협조를 당부하였으며, 우리 재외국민과 진출기업들의 활동에 대해서도 적극적인 관심과 지원을 요청하였습니다.

Results

[Text 1]

Ko-Uz (Google Translate)

<In Uzbek>

2023-yil 12-iyun kuni (dushanba) Koreya Xalqaro sog'liqni saqlash jamg'armasi (KOFIH, direktor Kim Xe In) tez tibbiy yordam xodimlarini o'qitish markaziga 8 turdagi 161 dona mobil o'quv jihozlarini, shu jumladan CPRni qo'llab-quvvatlash uchun xayriya marosimini o'tkazdi. O'zbekiston. Direktor Jang Xyon bosh direktor sovg'a qilingan o'quv jihozlari o'zbekistonlik shoshilinch tibbiy yordam texniklarining imkoniyatlarini kuchaytirish va amaliy mashg'ulotlar o'tkazish imkoniyatlarini kengaytirish orqali O'zbekiston xalqiga shoshilinch tibbiy yordam ko'rsatishni yanada yaxshilashga umid qilishini bildirdi. Umid qilamanki, O'zbekiston shoshilinch tibbiy yordam qutqaruvchilarning kasbiy mahorati KOFIH bilan birga rivojlanib boraveradi.

<Uzbek MT rendered in English>

On June 12, 2023 (Monday), The Korea International Health Foundation (KOFIH, director Kim he in) held a fundraiser to the ambulance personnel teaching center to support 161 mobile training units of 8 types, including CPR. Uzbekistan. Director Jang Khyon said that the director general hopes to further improve the provision of emergency medical services to the people of Uzbekistan by strengthening the capabilities of Uzbek urgency medical technicians and expanding the opportunities for practical training. I hope that the professional skills of emergency medical rescue workers of Uzbekistan will continue to develop along with KOFIH.

If we look at the error of the above Google Translation results based on DQF/MQM Error Typology, we can see that the missing error occurred in Han-Uz Google MT. First error, in source text <2023.6.12(월)...> when translated into Uzbek, the day of the week in parenthesis "()" is translated from parentheses. It is considered a stylistic error if it is translated in its own way. Second error is one example of Fluency error: <우즈베키스탄 응급의료인력훈련센터에 심폐소생기 등

이동식 교육장비 8종 161개를 지원하는
기증식을 개최하였습니다.> This word
응급의료인력훈련센터에 is translated into
Uzbek as "ambulance personnel teaching
center" it will be better if translate as "Training
Center for emergency medical personnel". ST
<심폐소생기> is translated as CPR but not
anybody can understand meaning of this word.
So, the better translated version is
"cardiopulmonary resuscitation machine". Next
error we can see in TT <...including CPR.
Uzbekistan. Director...> in ST <개최하였습니다.
국장현 공사참사관은 이번에 기증된
교육장비를 통해 우즈벡> there is no one word
sentence, it is an example of Accuracy Error
type. Second Accuracy error is <우즈벡
응급구조사의 응급의료서비스 역량 강화> is
translated as "capabilities of Uzbek urgency
medical technicians". Correct translation would
be "the capacity of emergency medical
personnel". The word <응급의료서비스>
translated into Uzbek <shoshilinch tibbiy
yordam: urgency medical service> but in
natural Uzbek language we say <tez tibbiy
yordam xizmati: emergency medical service>.

Ko-Eng-Uz (pivot workflow)

<ChatGPT, Korean → English>

On June 12, 2023, the Korea Foundation
for International Healthcare (KOFIH), led by
Director Hee-eun Kim, held a donation
ceremony to support the Emergency Medical
Personnel Training Center in Uzbekistan. They
donated a total of 161 units of portable
training equipment, including cardiac
pulmonary resuscitation devices. Minister
Hyeon-gwang Kong, the Consul-General,
expressed his hope that the donated training
equipment would enhance the emergency
medical service capabilities of
Uzbekistan's emergency rescue personnel and
provide them with better opportunities for
practical training. He also expressed the
expectation that the partnership with KOFIH
would contribute to the continuous

development of professional skills among
Uzbekistan's emergency medical responders.

<English → Uzbek>

2023-yil 12-iyun kuni Koreya Xalqaro
sog'liqni saqlash jamg'armasi (KOFIH) direktori
Xe In Kim boshchiligida O'zbekistondagi
Shoshilinch tibbiy yordam kadrlarini tayyorlash
markazini qo'llab-quvvatlash maqsadida
xayriya marosimini o'tkazdi. Ular jami 161 dona
ko'chma o'quv jihozlarini, jumladan, yurak-
o'pka reanimatsiya moslamalarini sovg'a
qilishdi. Bosh konsul vazir Xyon-gvang Kong
sovg'a qilingan o'quv jihozlari O'zbekiston tez
tibbiy yordam xizmati xodimlarining
shoshilinch tibbiy yordam ko'rsatish
imkoniyatlarini oshirishiga va ularga amaliy
mashg'ulotlar o'tkazish uchun yanada qulay
imkoniyatlar yaratishiga umid bildirdi.
Shuningdek, u KOFIH bilan hamkorlik
O'zbekiston shoshilinch tibbiy yordam
xodimlarining kasbiy malakalarini doimiy
ravishda oshirishga hissa qo'shishiga umid
bildirdi.

Next translation is multi-level translation,
the text is translated from Korean into English
through ChatGPT then Uzbek language. We will
see is it better than first translation. Despite
being dropped <2023.6.12(월)> the word
Monday but translation quality is better than
first direct translation. The highest quality
translation sentence is that:

ST: KOFIH와 함께 우즈벡 응급의료
구조사분들 전문적인 능력이 계속 개발되기를
바랍니다.

GT: I hope that the professional skills of
emergency medical rescue workers of
Uzbekistan will continue to develop along with
KOFIH.

ChT: He also expressed the expectation
that the partnership with KOFIH would
contribute to the continuous development of
professional skills among
Uzbekistan's emergency medical responders.

We can observe from this example that
Korean largely lacks possessives. The person

was translated as "I" straight in Google Translate's version. But in ChatGPT version, it is translated correctly, found the possessive.

[Text 2]

Ko-Uz (Google Translate)

<In Uzbek>

3 may (chorshanba) kuni elchi Kim Xi Song Umurzakovning Toshkent shahar hokimi vazifasini bajaruvchi lavozimida ishlashiga to'sqinlik qildi, ikki davlat poytaxtlari o'rtasidagi almashinuv va hamkorlikni rivojlantirish yo'llari hamda Koreya kompaniyalarining O'zbekistonga kirishi yo'llarini muhokama qildi. Hokim Umurzakov elchi Kimning tashrifini qutlab, ikki davlat rahbarlarining sa'y-harakatlari bilan mustahkamlangan do'stona va hamkorlik munosabatlari transport, sanoat iqtisodiyoti, sog'liqni saqlash kabi turli jabhalarda yanada rivojlanib borishiga umid qilishini bildirdi. g'amxo'rlik va turizm. Bundan tashqari, shahar hokimi Umurjaqov kundankunga rivojlanib borayotgan Toshkentga koreys kompaniyalari ko'proq kirib borishiga va ularni faol qo'llab-quvvatlashiga umid bildirdi. Elchi Kim shahar meri Umurzakovga mehmondo'stligi uchun minnatdorlik bildirib, Seul va Toshkent o'rtasidagi almashinuv va hamkorlikni rivojlantirish uchun qo'lidan kelganini qilishini aytdi. Bundan tashqari, biz Toshkent shahri hududida amalga oshirilayotgan yoki amalga oshirilishi rejalashtirilgan bir qator ODA loyihalari, jumladan, Toshkent Seul bog'ini saqlash loyihasi muammosiz amalga oshirilishi uchun shahar hokimidan manfaatdorlik va hamkorlikni so'radik.

<Uzbek MT rendered in English>

On May 3 (Wednesday), Ambassador Kim Xi Song prevented Umurzakov from serving as Acting Mayor of Tashkent, discussed ways to promote exchange and cooperation between the two state capitals and ways for Korean companies to enter Uzbekistan. Governor Umurzakov welcomed the visit of the ambassador Kim and expressed the hope that friendly and cooperative relations, strengthened by the efforts of the two heads of

state, will develop further on various fronts, such as transport, industrial economy, health care and tourism. In addition, Mayor Umurzakov expressed hope that Korean companies will enter Tashkent, which is developing day by day, and will actively support them. Ambassador Kim thanked the mayor of the city, Umurzakov, for his hospitality and said that he would do his best to promote exchange and cooperation between Seoul and Tashkent. In addition, we asked the mayor for interest and cooperation so that a number of ODA projects that are being implemented or planned to be implemented on the territory of the city of Tashkent, including the project for the preservation of the Tashkent Seoul Park, can be carried out without problems.

Ko-Eng-Uz (pivot workflow)

<ChatGPT, Korean → English>

On Wednesday, May 3rd, Ambassador Hee-sang Kim met with Acting Mayor of Tashkent, Uzbekistan, Mr. Umurzakov, to discuss ways to enhance bilateral cooperation and exchange between the capitals, as well as opportunities for Korean companies to enter the Uzbek market. Mayor Umurzakov welcomed Ambassador Kim's visit and expressed his expectation that the close and friendly cooperation between the two countries, which has been strengthened through the efforts of both leaders, would further develop in various areas such as transportation, industry and economy, healthcare, and tourism. He also expressed his active support for more Korean companies to expand their presence in the rapidly developing city of Tashkent. Ambassador Kim expressed his gratitude for the warm reception from Mayor Umurzakov and pledged to do his best to facilitate the activation of exchange and cooperation between Seoul and Tashkent. He also requested the Mayor's attention and cooperation in ensuring the smooth progress of numerous ODA projects, including the development of Tashkent Seoul Park and other planned projects in the Tashkent region. Additionally, Ambassador Kim requested the

Mayor's active interest and support for the activities of Korean expatriates and businesses in the area.

<English → Uzbek>

3-may, chorshanba kuni elchi Xi Sang Kim Toshkent shahar hokimi vazifasini bajaruvchi janob Umurzoqov bilan uchrashib, ikki tomonlama hamkorlik va poytaxtlar o'rtasidagi almashinuvni kengaytirish yo'llari, shuningdek, Koreya kompaniyalarining O'zbekiston bozoriga kirishi imkoniyatlarini muhokama qildi. Hokim Umurzoqov elchi Kimning tashrifini qutlab, ikki davlat rahbarlarining sa'y-harakatlari bilan mustahkamlangan yaqin va do'stona hamkorlik transport, sanoat va iqtisodiyot, sog'liqni saqlash, turizm kabi turli sohalarda yanada rivojlanishiga umid bildirdi. Shuningdek, u jadal rivojlanayotgan Toshkent shahrida koreys kompaniyalarining ko'proq ishtirok etishini faol qo'llab-quvvatlashini bildirdi. Elchi Kim shahar hokimi Umurzoqovdan samimiy qabul uchun minnatdorlik bildirib, Seul va Toshkent o'rtasidagi almashinuv va hamkorlikni faollashtirish uchun qo'lidan kelganini qilishga va'da berdi. Shuningdek, u shahar hokimidan ODA bo'yicha ko'plab loyihalarni, jumladan, "Toshkent Seul Park"ni rivojlantirish va Toshkent viloyatida rejalashtirilgan boshqa loyihalarni izchil davom ettirishni ta'minlashga e'tibor qaratish va hamkorlik qilishni so'radi. Bundan tashqari, elchi Kim shahar hokimidan koreyalik muhojirlar va ishbilarmonlarning hududdagi faoliyatiga faol qiziqish va qo'llab-quvvatlashni so'radi.

In second translation we can find easy some notable errors. Fluency error is ST<우무르자코프 주재국 신임 타슈켄트시장 대행을 예방하고, 양국 수도권 교류협력 증진방안 및 우리 기업의 우즈베키스탄 진출방안에 대해 논의했습니다.> TT (Google T) < Ambassador Kim Xi Song prevented Umurzakov from serving as Acting Mayor of Tashkent, discussed ways to promote exchange and cooperation between the two state capitals

and ways for Korean companies to enter Uzbekistan.> The meaning of the sentence absolutely changed. TT (ChatGPT) < Ambassador Hee-sang Kim met with Acting Mayor of Tashkent, Uzbekistan, Mr. Umurzakov, to discuss ways to enhance bilateral cooperation>. The word <타슈켄트시장> is translated as <mayor> in both translation, but in Uzbek language we say <Governor> not <Mayor>. In this text also has some mistranslation e.i. (GT) < ...health. care and tourism. In addition,...>.

Error typology

A total number of 10 long segments were analyzed manually following the DQF/MQM Error Typology. The most common errors were related to Fluency, Accuracy and Style. The distribution of errors in Google Translate and ChatGPT are presented in Table 1. The categories applied here accuracy, fluency and style correspond to the core dimensions of the MQM hierarchy (Lommel, Uszkoreit & Burchardt, 2014).

Therefore, as noted in Table 1 above, the manual analysis of the output taken from both engines differs to a great extent. The findings reveal that only 4 errors have been identified in ChatGPT as opposed to Google Translate, where meaning was not properly conveyed in 15.

Category	Ko-Uz (GT)	Ko-Eng-Uz (ChatGPT)	Sub-category
Fluency	6	2	Grammar / Grammatical register / Inconsistency
Accuracy	7	1	Mistranslation / Addition / Over-translation
Style	2	1	Unidiomatic / Awkward
Other	0	0	Culture-specific reference / Tone
Total	15	4	—

Table 1. *Distribution of errors*

Source: compiled by the author on the basis of the manual MQM annotation.

Automatic evaluation

The quality of the texts was evaluated with the automatic metric BLEU using the

online BLEU score evaluator from Tilde (Tilde, n.d.).

BLEU:	41.21	22.98
Precision x brevity:	41.83 x 98.52	22.98 x 100.00
Type	1-gram 2-gram 3-gram 4-gram	1-gram 2-gram 3-gram 4-gram
Individual	64.93 46.56 35.16 28.80	47.62 28.47 17.73 11.59
Cumulative	63.96 54.17 46.67 41.21	47.62 36.82 28.86 22.98
Export data	CSV	

Figure 1. *BLEU scores for Text 1*

The BLEU score for Google Translate is 41.21, relatively ChatGPT score is 22.98.

BLEU:	46.53	8.91
Precision x brevity:	50.39 x 92.33	8.91 x 100.00
Type	1-gram 2-gram 3-gram 4-gram	1-gram 2-gram 3-gram 4-gram
Individual	71.17 54.09 45.16 37.09	28.10 11.65 5.45 3.54
Cumulative	65.71 57.29 51.53 46.53	28.10 18.09 12.12 8.91
Export data	CSV	

Figure 2. *BLEU scores for Text 2*

The BLEU score for Google Translate is 46.53, relatively ChatGPT score is 8.91. ChatGPT appears to achieve better results than Google Translate when it comes to the translation of Informative Texts. This divergence is consistent with the known limitation of BLEU: as an n-gram overlap measure it rewards surface similarity to the reference and penalises

legitimate paraphrase, which a pivot-based workflow produces more often (Papineni, Roukos, Ward & Zhu, 2002; Wu & Wang, 2007).

Conclusion

By comparing the direct translation from Korean to Uzbek through Google Translate and the multilevel translation from Korean to English using ChatGPT, followed by translation

from English to Uzbek, we can observe notable differences. The multilevel translation produces a more accurate and natural-sounding result, capturing the intended meaning with greater precision. The nuances of the source text are better preserved, resulting in a translation that resonates with native Uzbek speakers.

The findings suggest that the most common errors occur at Fluency and Accuracy levels. In addition, the results show that ChatGPT outperforms Google Translate in both manual and automatic evaluation. In this small study, we discovered that Google Translate's direct translation from Korean to Uzbek still have errors and problems. The translation from Korean to English using ChatGPT, followed by a translation to Uzbek

using Google, is quite accurate and contains few mistakes. We do not want to claim that Google Translate is the worst and ChatGPT is the best translator because in this investigation only informative texts were translated. Numerous areas remain undiscovered. Perhaps with the help of Google Translate get accurately translate texts like literary works, advertisements, and conversation processes into Uzbek with lack of errors

Although there are many types of MT nowadays, we cannot use NMT like DeepL because the Uzbek language is not yet developed. But if we translate Korean informative text into English through ChatGPT and translate the result into Uzbek, we can achieve better translation.

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