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Research article

## Linguacultural Artefacts for Translation Training

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### Abstract

This paper explores the implementation of a “phygital” approach in Turkish-Russian translation training, using traditional Turkish folk songs, known as *Türkü*, as linguistic and cultural artifacts. *Türkü* carry significant layers of meaning, making them invaluable resources for training future translators and philologists. Despite extensive research on *türkü*, studies focusing on its translation are scarce. The paper advocates for a phygital approach, blending physical and digital dimensions to be implemented in the training process of translators and philologists. The study is grounded in cognitive theories of language, emphasizing language as a primary encoding system that shapes human perception of reality. The theoretical framework integrates onomasiological approaches to language and considers translation as a process of structural and semantic transformations between distinct encoding systems. The results of this and previous studies reveal the efficacy of generative models in capturing certain linguistic and cultural aspects but underscore the indispensability of human involvement, particularly in context-based interpretation and post-translation analysis. The research advocates for a balanced integration of artificial intelligence and human expertise in translation education, with educators serving as mentors to guide students through linguistic and cultural intricacies.

**Keywords:** Phygital; Translation Training; Turkish-Russian; *Türkü*; Artificial Intelligence

**Acknowledgment:** This study highlights the results of the “Phygital Turkish-Russian Translation Workshop” Project conducted at Ankara Hacı Bayram Veli University. The project explored the use of generative AI models, specifically ChatGPT, in pre-translation analysis and translation tasks.

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Научная статья

## Лингвокультурные артефакты для обучения переводу

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### Аннотация

Данное исследование посвящено внедрению фиджитал-подхода в процесс обучения переводу с турецкого на русский язык на примере традиционных турецких народных песен-тюркю, выступающих в качестве лингвокультурных артефактов. В тюркю содержатся значительные пласты смысла, что делает их бесценным ресурсом для обучения будущих переводчиков и филологов. Несмотря на большое количество исследований тюркю в Турции, труды в области перевода их на русский язык отсутствуют. В рамках исследования фиджитал-подхода объединяются физические и цифровые измерения, которые должны быть реализованы в процессе обучения переводчиков и филологов. Исследование основано на когнитивных теориях языка с акцентом на языке как основной системе кодирования, формирующей человеческое восприятие реальности. Теоретическая основа включает ономастологические подходы к языку и рассматривает перевод как процесс структурных и семантических трансформаций между различными системами кодирования. Результаты показывают эффективность генеративных моделей в передаче некоторых поверхностных лингвистических и культурных аспектов, но свидетельствуют о необходимости человеческого участия, особенно в контекстно-ориентированной интерпретации и постпереводческом анализе. Исследование показывает необходимость сбалансированного использования искусственного интеллекта и человеческого участия в процессе обучения переводу, в котором преподаватель выступает наставником, помогающим студентам разобраться в лингвистических и культурных тонкостях.

**Ключевые слова:** Фиджитал; Обучение переводу; Турецко-русская языковая пара; Тюркю; Искусственный интеллект

**Благодарность:** В данной статье представлены результаты проекта “Переводческая мастерская в фиджитал-формате: турецко-русская языковая пара”, проведенного в университете имени Хаджи Байрама Вели. В проекте было исследовано применение генеративных моделей искусственного интеллекта, в частности ChatGPT, в предпереводческом анализе и при решении переводческих задач.

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## INTRODUCTION

Linguacultural artifacts, which encode information about the linguistic and cultural landscape of a specific nation, play a crucial role in preserving and transmitting national values, traditions, and cultural concepts. Among these artifacts, oral or written texts stand out as the primary source for understanding the material and spiritual culture of a nation as it evolves over time. Folk songs are particularly noteworthy examples of such texts. In contemporary Turkish culture folk songs, known as “türkü,” represent unique texts with multiple layers of meaning that require visualization to fully grasp the fragment of reality they depict. These songs encompass a variety of semantic dimensions that make them valuable educational resources for the professional training of future philologists and translators. They offer rich material for understanding of translating, pre-translation analysis, and teaching translation techniques. Furthermore, as linguacultural artifacts, folk songs hold significance in the context of research on human and generative artificial intelligence interaction. Given that LLM-driven generative systems have become integral components of the linguacultural space of Homo Sapiens, it is evident that this space will continue to undergo rapid evolution. Specialists, who have been working with texts, created by humans throughout history, must now deal with texts generated by artificial intelligence. This fact entails a number of questions, such as: Is a traditional approach enough to satisfactorily train philologists and translators? What is the best approach for the specialists of the future, who will very likely have to work with the texts, generated by generative AI and humans? Could generative AI be integrated into the process of training and education of future specialists? In response to these questions, this paper advocates for a “phygital” approach to foreign language and translation training.

## LITERATURE REVIEW

In Turkey, there is a substantial body of scientific literature dedicated to the study of türkü. The database [dergipark.org.tr](http://dergipark.org.tr) indicates a total of 570 articles related to the keyword “türkü.” These articles predominantly focus on specific aspects of various türkü, especially on cultural features shaped by history, geography or everyday life (Atmaca, 2023; Dinç, 2020; Mete, 2023; Mirzaoglu, 2012). Nevertheless, there is a shortage of articles addressing the linguistic analysis or translation of türkü into different languages (Karagöz et al., 2023). A search in the Turkish dissertation database [tez.yok.gov.tr](http://tez.yok.gov.tr) using the keyword “türkü” provides 302 dissertations (both master's and doctoral theses). The majority of these research concentrates on the unique characteristics of türkü as a musical genre, with some of them exploring the motifs and thematic content of the songs. However, none of these dissertations appear to address the linguistic analysis or translation of türkü into other languages. As for the monographs published in Türkiye, these works mostly contain selected songs and comments on their origin or topic.

There is a limited amount of research on türkü, particularly its translation into Russian in Russia. A brief overview was presented in a 2013 article, where the author introduced the concept of türkü within the context of Turkish folklore. Türkü was defined as songs that reflect Turkish culture, with love, sadness, grief, as well as joy and happiness being the main themes in the songs (Sadykova, 2013). Another article, titled “On the



Question of Poetry and Folk Songs about the First World War” explores the portrayal of World War II in Turkish folklore, highlighting its patriotic themes (Anikeeva, 2016). However, this article leans more towards literature than linguistics. In a 2021 article, Svetlana Vorobyova and Elena Oganova analyzed romantic motifs and corresponding poetic images in the works of the prominent Turkish poet “ashik” Karacaoğlan from the 17th century. However, this paper primarily focuses on literary analysis, exploring the typology and poetics of “ashik” poetry, both within folklore and the author’s individual tradition within a single work (Vorobyova & Oganova, 2021). The most recent research on türkü, dated 2023, highlights some of the features of the songs and provides translation examples (Lojkina, 2023).

Three papers on Turkish folk songs were found in the Web of Science data base. In the framework of cultural studies, these articles deal with certain motifs (Mirzaoglu, 2012; Ugur, 2015) or metaphors (Görkem, 2021) in the songs.

As part of this study, an examination of both Russian and Turkish literature on the concept of “phygital” was conducted. According to the analysis of research results in elibrary.ru data base, it can be concluded that for the time being “phygital” is widely adopted in marketing, sport, and sometimes in digital technologies research. The key word “phygital” is included in 603 publications in the database. In Turkey, the concept “phygital” has been transliterated as “fijital” According to the dergipark database, it is used only in marketing research in a limited number of articles (Çelik et al., 2023; Köse & Yengin, 2018; Özatar, 2023).

The analysis of the Web of Science database using the keyword “phygital” revealed that this concept has been in use since 2007 and was initially applied in the field of computer technology (Nakazawa & Tokuda, 2007). The database analysis shows that currently this term is most frequently used in research papers in the category of Business (64 articles), Management (27 articles), and Economics (21 articles). The term is also used in Computer Science (12 articles) and Communication (11 articles). Two papers were detected in the category of Linguistics (Due & Toft, 2021; Lyons, 2019). The term was introduced by researchers as a synthesis of “physical” and “digital”. Andrea Gaggioli (2017) attempts to approach the concept of phygital in a broader context, describing it as a *“neologism that results from the synthesis of the terms ‘physical’ and ‘digital’ – refers to a new concept of space that originates from the increasing convergence of the physical dimension and the virtual dimension.”*

## THEORETICAL FRAMEWORK

The theoretical framework employed in this project is rooted in a cognitive approach to language (Boldyrev 2007; Kubryakova 2004; 2012) with the main idea of language being a primary encoding system (Lotman, 1998; Zaliznyak et al., 1962;), fragmenting and conceptualizing human’s reality.<sup>1</sup> The understanding of the relationship between reality and language is grounded in the onomasiological approach to language

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<sup>1</sup> This paper presents the outcomes of the “Phygital Turkish-Russian Translation Workshop” project, conducted in the autumn semester of 2023-2024 at Ankara Hacı Bayram Veli University within the Department of Russian Language and Literature as part of the Turkish-Russian translation course under the supervision of Assoc. Prof. Olena Kozan.



(Meshchaninov, 1940; Scherba, 1977), further developed in the theory of naming (Serebrennikov & Ufimtseva, 1977). According to this approach, language functions as a system that encodes information about reality through models of primary and secondary naming patterns, allowing for the representation of an infinite number of potential situations with varying structures.

The theoretical framework of this paper also encompasses the theory of translation, established within Russian linguistics as an independent scientific discipline with its own approaches, concepts, and research methods. Within the project framework, translation between two distinct information encoding systems is defined as a process of structural and semantic transformations, where the naming patterns must be duly considered. Pre- and post-translation analyses, as well as the process of translation itself, are conceptualized and implemented within the phygital paradigm. In this paper, we use the concept of phygital as an approach to translation training, which involves the use of AI-based applications and the analysis of their effectiveness during the pre-translation and post-translation stages. The main objective of this approach is to develop critical thinking, creativity and digital literacy in future translators. We consider the creation of a digital product by human intelligence (the translator) with the help of artificial intelligence as one of the goals of training within the phygital approach.

Key concepts within this paper are naming, defined as a process involving a specific correlation between a word and its referent (Akhmanova, 1966); primary naming pattern as a result of the naming process which can be understood through etymological or historical analysis (Yartseva, 1998); secondary naming pattern referring to the use of an existing name [primary naming pattern] for a new reality fragment (Yartseva, 1998); situation as a fragment of reality reflected in the language dimension. The main elements of the situation are subject, action, object, space and time (Zherebilo, 2016). Translation is then understood as a process involving analysis, aiming at a clear understanding of the real situation, followed by synthesis, which involves reframing of the situation in the target language through semantic and syntactic transformation models (Poluyan, 2005). Finally, the linguacultural artifact is a text which is produced within a particular linguacultural space and is highly transparent for the native speakers, and phygital designates a synthesis of the physical and the digital (Nakazawa & Tokuda, 2007).

Participating students were introduced to these key approaches and concepts necessary for the implementation of the project.

## MATERIALS AND METHODS

Thirty final-year students participated in the “Phygital Turkish-Russian Translation Workshop.” All of the students were native Turkish speakers with Russian as their foreign language. The primary objective of this project was to visualize the translation process of linguacultural artifacts from the perspective of novice translators, using generative models in the process. The aims of the project were defined as developing an algorithm for pre-translation analysis of culturally significant texts and evaluating the potential and challenges associated with using artificial intelligence models, specifically ChatGPT, for novice translators in analyzing and translating culturally significant texts. Translation



problems encountered by novice translators using artificial intelligence models were to be categorized and a post-translation analysis algorithm was to be developed.

Eighty one türkü, representing 81 provinces of the Turkish Republic, served as the material for the project. Texts were selected based on their cultural significance. They reflect various aspects of human relationships, natural phenomena, everyday life, and historical events. Additionally, the selected texts are well-recognized within modern Turkish culture due to their frequent presence in Turkish media. The texts were selected from the türkü database repertukul.com, which is considered to be the largest collection in Turkey.

At the first stage of the project, the aim and tasks were presented to the students. The roadmap of the project included the following stages: 1) analysis of the original text based on the algorithm with focus on selecting a fragment of reality encoded in the text; 2) analysis with the artificial intelligence model ChatGPT, using different prompts; 3) comparison of human and AI analysis results; 4) translation of the text using artificial intelligence models; 5) post-translation analysis and working on a final translation; and 6) creation of a digital product.

Each stage of the project was carried out one-by-one with results discussed in class. Each participant provided analysis and translation data, as well as comments on the translation process. This study presents an analysis of the project results, focusing on the classification of problems encountered by participants during the analysis of the original texts and their translations. The students' errors which occurred during translation and implementation of techniques after post-translation analysis are analyzed and categorized.

## RESULTS

The results of the analysis are represented according to the stages of the project implementation.

Participants encountered challenges during the pre-translation analysis, particularly in discerning the onomasiological structure of the text, despite its being in their native language. These difficulties stem from the intricate structure of the linguacultural artifact. The cohesion and coherence of türkü is not transparent to readers or listeners, requiring them to identify the fragment of reality condensed within the naming pattern. Initially, participants attempted to interpret the text solely based on numerous comments found in the various electronic and printed materials, rather than treating the text itself as the primary source of encoded information. This approach did not enable them to reveal semantic connections within the text, thereby impeding their ability to define an appropriate translation technique.

When participants approached the türkü as a source of information regarding fragments of reality, they employed onomasiological categories in their textual analysis. By discerning categories such as “the subject,” “the object,” “the action,” “the state,” “the feature,” “the space” and “the time” along with their interrelations, they visualized the onomasiological structure of each song. Through the analysis of selected türkü, certain recurring structural elements of linguacultural artifacts were identified. Many türkü, irrespective of their regional origins, seem to follow a common pattern: [natural/artificial objects/phenomena → action/state of the subject]. In this model, references to natural or



artificial phenomena take precedence, while the subjects and their actions or states assuming a secondary role in the textual structure. Consequently, each quatrain adheres to this principle. Analyzing similar texts requires tracing connections between subjects and objects to ascertain the situation depicted in the text, which is often encoded across various segments without a discernible sequence. In other words, the “plot” of a türkü is not presented chronologically but is dispersed throughout the text, sometimes lacking explicit indications of time and space. This distinctive feature of türkü makes them challenging to comprehend and analysis in terms of the situation is required during pre-translation analysis.

The pre-translation analysis shows that türkü texts contain a number of various secondary naming patterns. These secondary patterns are “a layer” of the data, which have to be transformed into the information about the event, following the model [natural/artificial objects/phenomena → action/state of the subject]. This dual nature of secondary naming patterns, i.e. a correlation between natural/artificial objects at the surface level of the text (cohesion), and a reflection of deep connections in the structure of a situation (coherence) is also an obstacle, which makes it difficult to “read” the situation encoded in türkü. There are some examples in Table 1 of the original Turkish texts with literal translation into English in brackets and two versions of translation into Russian, made by the participant and by the editor.

**Table 1.** Comparison of the translations: *Halkalı Şeker* folk song

ORIGINAL TURKISH TEXT (with literal translation into English)	PARTICIPANT'S TRANSLATION INTO RUSSIAN	EDITOR'S TRANSLATION
<b>Halkalı şeker şam fıstık,</b> <i>(Ring-shaped sugar)</i> <b>Arpalar kara kılıçık,</b> <i>(Barley with black thorns)</i> <b>Eğer beni seversen (aman)</b> <i>(If you love me (oh my))</i> <b>Al çeyizi yola çık.</b> <i>(Take the dowry and hit the road).</i>	Круглый сахар, дамасские фисташки, Ячмень черный, остистый, Если меня любишь (аман) Бери приданое, отправляйся в путь.	Кругленькие леденцы, дамасские фисташки. Зреет рожь, на полях много белой каши. Если любишь ты меня – не томи, С приданым навстречу мне выходи.
<b>Halkalı şeker</b> <i>(Ring-shaped sugar)</i> <b>Hasretlik çeker,</b> <i>(Suffer from longing)</i> <b>Çok sallanma sevdiğim,</b> <i>(Don't sway too much my beloved)</i> <b>Cahilim aklım gider (...)</b> <i>(I am ignorant, I lose my mind).</i>	Круглый сахар, Испытывает тоску, Не колебайся, дорогая, Я невежественен, мой ум уйдет (...)	Кругленькие леденцы Ждут свой черед. Любимая, не томи, Мой покой пропадёт (...)



In the first quatrain structure, the emphasis is placed on “ring-shaped sugar,” while in the second, the focus shifts to its “suffering from longing.” However, the depiction of this sugar (which is actually a kind of sweets) is symbolic, linked to the tradition of presenting coloured sweets during engagement ceremonies. This scenario forms the backbone of the text. In this context, the protagonist is the young man (the fiancé) eagerly anticipating his wedding day. He urges his fiancée to swiftly prepare the dowry and embark on the journey, stressing the urgency by warning against hesitation, lest he “lose his mind.” This underlying situation is metaphorically encapsulated in the “ring-shaped sweets,” which literally appear to “suffer from longing.” Essentially, the narrator (the young man in this instance) portrays the situation from a unique perspective, using the artificial object – a desire to offer these sweets at his wedding – to express his own subjective reality of longing.

During the pre-translation analysis, participants identified realia and images specific to Turkish culture, which could pose potential challenges to the translation into Russian. It was determined that while realia can be conveyed through translation transformations, their connotations and allusions will inevitably be lost in the translated text. While using ChatGPT in the process of pre-translation analysis, the participants found that the generative model effectively described the realia of Turkish culture, presenting the user with a unique “dictionary-type” description of reality. In this case, the logical structure of the query is not of particular significance. The simplest query in the form of “What is [realia name] in Turkish culture?” yields a positive result. However, when presenting the context in the form of a sentence, quatrain, or complete text and creating a query for realia analysis within this context, the model begins to generate descriptions of a general nature, which may not correspond to the situation in the text. In other words, the model generates text where these realia may be semantically connected to the Turkish language – but not in the specific context. The example is given in Table 2.

**Table 2.** Comparison of the translations: *Ak Koyun Meler Gelir* folk song

ORIGINAL TURKISH TEXT (with literal translation into English)	CHATGPT'S TRANSLATION INTO RUSSIAN	TRANSLATION IN RUSSIAN, EDITED BY HUMAN
<p><b>Ak koyun meler gelir</b>  <i>(The white sheep bleats, it comes)</i></p> <p><b>Dağları deler gelir (Vay)</b>  <i>(It pierces through the mountains (oh dear))</i></p> <p><b>Hakikathî yâr olsa</b>  <i>(If it were a true lover)</i></p> <p><b>Geceyi böler gelir (Vay)</b>  <i>(It would split the night (oh dear))</i></p>	<p>Белая овца блеет,                      Горы пробивает (ой)                      Истинная любовь моя                      Ночь разрушает (ой)</p>	<p>Белая овца блеет,                      Горы преодолает, ох,                      Если она меня искренне любит,                      Ночь, как преграду, тоже преступит, ох.</p>





Analyzing the passage in Table 2, the generative AI interpreted “the night” as the time when the türkü could be performed. In the comment about the subjects in the text the generative AI suggested the idea that the addressee of the letter was someone, who had fallen in love. That person lived in a natural environment and was involved in animal husbandry, appreciating the nature. This comment is not relevant to the situation in the text where the narrator addresses his beloved reproachfully.

Table 3 provides an example of a literal translation by chat GPT. The original text serves as context for the model, enabling it to generate translations. However, as previously mentioned, the AI reproduces the semantics of primary nominations but does not replicate secondary nominations.

**Table 3.** Comparison of the translations: *Ak Gazan Kara Gazan* folk song

ORIGINAL TURKISH TEXT (with literal translation into English)	CHATGPT'S TRANSLATION INTO RUSSIAN	TRANSLATION IN RUSSIAN, EDITED BY HUMAN
<b>Ak gazan kara gazan,</b> <i>(Earn white, earn black)</i> <b>Yazmış yazıyı yazan.</b> <i>(Written by the one who writes)</i> <b>Eller düğün ediyor,</b> <i>(Hands are celebrating the wedding)</i> <b>Birazcık da sen özen.</b> <i>(You should care more as well).</i>	Белый зарабатывай, Черный зарабатывай. Написал тот, кто написал. Руки устраивают свадьбу Немного, и ты будешь заботиться.	Кровью-потом заработай, Будь, что было суждено. Все вокруг играют свадьбы, Тебе ж как будто всё равно.

In the translation by ChatGPT, the omission of crucial semantic components that shape the situation is evident: the girl is urging her beloved to exert effort to ensure their wedding takes place, even if it means earning money through strenuous means. Despite their destiny being predetermined by a higher authority responsible for people's fates, the young man is urged to work harder. The girl reproaches him, lamenting that while everyone else is getting married, he is not putting in the necessary effort to do so.

In most cases, the participants of the project did not question the literal translations provided by ChatGPT. Literal translation involves surface transformations following the model [unit in the source language] → [unit in the target language], which poses challenges for beginner translators who struggle to move beyond the influence of form. Thus, errors stemming from native language interference are common, particularly in the initial translation drafts proposed by participants. For instance, in the example presented in Table 3, the translator appears to have been influenced by the form. For instance, in the expression “eller düğün ediyor,” where the word “el” (literally “hand”) in the original text is translated as “Hands are celebrating the wedding,” the broader meaning of the term “el” in the sense of “other people around” was not thoroughly analyzed. As a result, the generative AI reproduced the literal translation, leading to the error.



In addition to interference errors, onomasiological errors were identified, where the translator failed to analyze the fragment of reality, highlighting its key elements, thereby failing to visualize the reality reflected in the original text. As a result of such errors, cognitive dissonance could arise in the translated text. Examples of interference and onomasiological errors can be seen in Table 4.

**Table 4.** Comparison of the translations: *Şu Dalmadan Geçtin Mi* folk song

ORIGINAL TURKISH TEXT (with literal translation into English)	FIRST TRANSLATION BY PARTICIPANT	EDITOR'S TRANSLATION
<b>Şu Dalmadan geçtin mi?</b> <i>(Did you pass through that Dalma?)</i>	Ты прошёл через Далама?	Бывал ли ты в Даламе?
<b>Soğuk sular içtin mi?</b> <i>(Did you drink cold waters?)</i>	Ты пил холодные воды? Ты выбрал Юрека Али среди бойцов?	Познал ли там вкус воды в роднике? Узнал ли ты Йорука Али, Среди героев-эфе?
<b>Efelerin içinde</b> <i>(Among the heroes)</i>		
<b>Yörük Aliyi seçtin mi?</b> <i>(Did you choose Yörük Ali?)</i>		

In this example, the translator, upon seeing the image of water in the original text, concluded that it referred to a river named “Dalama” and its cold waters, which resulted in an onomasiological error. “Dalama” is the name of a small town where a spring, once the center of social life, is located. It was in this town that the renowned hero of the national liberation war, Yoruk Ali, started a resistant movement against the occupation forces.

In the initial translation drafts by participants, errors in the use of collocations and stylistic inaccuracies were also frequently encountered. An example of collocation errors can be found in Table 5.

**Table 5.** Comparison of the translations: *Mendil Aldım Bir Deste* folk song

ORIGINAL TURKISH TEXT (with literal translation into English)	FIRST TRANSLATION BY PARTICIPANT	EDITOR'S TRANSLATION
<b>Mendil aldım bir deste,</b> <i>(I bought a bundle of handkerchiefs)</i>	Я взял пучок платков,	Платочки есть уже у меня,
<b>Meni anamdan iste.</b> <i>(Ask for permission from my mother)</i>	Попроси меня у мамы.	Проси мою мать отдать за тебя,
<b>Eğer anam vermezse</b> <i>(If my mother doesn't give permission)</i>	Если мама не даст,	Если не выдаст- жди ответ от меня.
<b>Son cevap menden iste.</b> <i>(Ask me for the final answer).</i>	Последний ответ у меня.	



In this example, the original text uses the term “deste,” which serves as a collective unit (denoting a dozen, bundle, bunch, etc.) in Turkish. The translator reproduced the collective meaning based on the variant suggested by the generative model, without questioning the collocation of this word in the target language.

An example of a stylistic error can be found in Table 6.

**Table 6.** Comparison of the translations: *Çemberimde Gül Oya* folk song

ORIGINAL TURKISH TEXT (with literal translation into English)	FIRST TRANSLATION BY PARTICIPANT	EDITOR'S TRANSLATION
<p><b>Çemberimde gül oya,</b> <i>(I have rose lace in my headscarf)</i></p> <p><b>Gülmedim doya doya.</b> <i>(I haven't laughed to my heart's content)</i></p> <p><b>Dertlere karıyorum</b> <i>(I am mixing with troubles)</i></p> <p><b>Günleri saya saya.</b> <i>(Counting the days)</i></p>	<p>Розовые вышивки в моих руках,</p> <p>Я не рассмеялась на полную катушку.</p> <p>Я погружаюсь в беды с каждым проходящим днем.</p>	<p>Есть роза на моем платке Жизнь не улыбнулась мне. Беды мимо не прошли, Я не живу, считаю дни.</p>

In this example, the original text employs a verbal reduplication construction (“doya doya ← doymak”), which conveys information about the intensity of the action or situation. Based on its database, the generative model suggested the variant “на полную катушку” (in full swing) which is colloquial in Russian compared to the neutral style in Turkish. In this case, the translator ignored the stylistic features of the construction in the target language.

During the post-translation analysis of the first translation draft, participants were introduced to the capabilities of the National Corpus of the Russian Language, particularly its “Word Sketch” function. Through independent work with the corpus, participants presented a second translation variant along with justifications for their translation decisions. Analysis of these decisions revealed that participants successfully identified collocations, thereby correcting collocational errors, and they also determined connotations or stylistic nuances of linguistic units in the target language using the corpus. The first draft of the translation and the version after the post-translation analysis are presented below.



**Table 7.** Comparison of the translations: *Armut Dalda Dik Durur* folk song

ORIGINAL TURKISH TEXT (with literal translation into English)	FIRST TRANSLATION BY PARTICIPANT	SECOND TRANSLATION
<b>Armut dalda dik durur</b> <i>(Pear stands upright on the branch)</i>	Груша стоит на ветке, Внизу стоит герой,	Висит груша на ветке, Молодец под ней.
<b>Dibinde yiğit durur</b> <i>(A brave man stands beneath it)</i>	Девушка, которую я люблю, Передо мной смеется (черноглазая моя, ой)	Моя любимая с улыбкой Смотрит на меня, Черноглазая моя, ой!
<b>Benim sevdiceğim kız</b> <i>(My beloved girl)</i>		
<b>Karşımda gülüp durur (kara gözlüm aman)</b> <i>(Stands in front of me, laughing (my dark-eyed one, oh my))</i>		

In this example, the original text employs a term with broad semantics (“durmak” – to stand, to be, to lie down depending on the context). The translator initially reproduced the spatial relations of the source language, but after consulting the corpus and verifying collocations he found a functional equivalent.

**Table 8.** Comparison of the translations: *Ah Gidin Benden Söyleyin O Yara* folk song

ORIGINAL TURKISH TEXT (with literal translation into English)	FIRST TRANSLATION BY PARTICIPANT	SECOND TRANSLATION
<b>Ah gidin benden söyleyin o yara,</b> <i>(Go and tell my beloved from me)</i>	Иди и скажи этой любовнице от меня.	Ах, скажите скорее любимой моей,
<b>Ben de düştüm elden ayaktan.</b> <i>(I have also fallen from hands and feet)</i>	Я тоже заболел.	Я слёг от любви, от любви только к ней.

In this example, the translator used the term “любовница” (mistress) in the translation text. However, after determining the connotations of this term using the corpus, an appropriate alternative was found.

## DISCUSSION AND CONCLUSION

Employing generative AI as a tool has become indispensable in handling diverse textual materials. However, the user should be aware that the generative AI is just an auxiliary instrument and not a final product. Such awareness can be cultivated through practical engagement with generative AI. It seems essential to begin cultivating this



experience during education, thus introducing the phygital concept to the training of translators and philologists. This concept signifies the synthesis of physical and digital dimensions, not their opposition, which proves to be functional and effective in translation training. In this context, educators can act as moderators and mentors, while students have the opportunity to utilize all available resources for professional development while cultivating an awareness that it is the human intellect that creates the final product.

In the project described in this paper, the phygital approach was applied to the analysis and translation of linguacultural artifacts using *türkü* as an example. Students were encouraged to combine the capabilities of human (natural) and artificial intelligence and to evaluate the potential of phygital concept in philology and translation. The results of this project indicate that at the stage of pre-translation analysis, the generative model (ChatGPT) effectively describes certain realia of Turkish linguaculture, with the language of the prompt (Turkish, Russian, or English) not affecting the quality of the information generated by the model. In this context, it can be concluded that these models can be used in education as a source of information about linguaculture. This function is particularly relevant because, as of now, there is no printed or electronic dictionary reflecting the realia, precedent facts, allusions and connotations of Turkish linguaculture. Given the current scenario where generative AI may produce factual errors, often referred to as “hallucinations,” novice translators and philologists must develop the skill to verify factual information. However, it is plausible that over time such errors may become less pertinent, particularly as generative AI systems are trained in Turkish.

Considering the relevance and effectiveness of analyzing separate realia taken out of context, it is necessary to note the ineffectiveness of the generative model in analyzing the deep structure and coherence of the text. The responses provided by the model contained incorrect interpretations of secondary naming patterns within the context of *türkü*. Moreover, the model interpreted the text based on collocations in the source text, which often did not reflect the reality described in the situation. In this context, it appears that it is the human immersed in time and space and interpreting reality, who can effectively work with context, especially linguacultural ones.

The process of translation using generative models showed that primary naming patterns are transferred, while secondary naming patterns are not reproduced by the model. However, novice translators often do not notice these errors because they are influenced by their native language, leading them to prioritize form. Additionally, novice translators may overlook collocational shifts or stylistic errors in their translations made with the generative AI. In such cases post-translation analysis becomes necessary, during which the instructor acts as an editor, explaining each translation error in detail but not providing a ready-made solution, instead guiding the student to search for a functional equivalent. In most cases, working with the Corpus of the Russian language during the post-translation analysis helped students to find a more adequate and acceptable solution. Furthermore, it is worth noting that participants attempted to interact with the model by providing comments on its translation option. In this context, it should be emphasized that with such a unique form of training, the model presented more successful translation options. However, the adequacy of its responses needed to be verified by a human. Thus,



at this stage of the development of generative models, humans remain active both at the starting point, as creators of the data on which models are trained, and at the endpoint, when creating a final product.

The translation process was visualized by students through the final product “Türküler: Go Phygital” on the Bookcreator platform. Digital products, developed within the phygital approach, are available for public access (Kozan, 2024a). The project was presented by the students in a panel discussion. A video trailer in Turkish is also publicly accessible (Kozan, 2024b).

The project results allow for discussion regarding the introduction of the phygital concept into the training process of philologists and translators. In this context, it is necessary to emphasize the role of the instructor as a mentor who does not prohibit the use of artificial intelligence but guides the students, fostering an awareness necessary for the adequate analysis of reality with the aim of working further with information or transforming data in the system of another linguaculture. It is this awareness, inherent in humans, that will enable us to utilize all the capabilities of artificial intelligence while retaining the right to shape and control the process of creating the final philological product.

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