

Unlocking Creative Potential of Translation Students in the Era of Artificial Intelligence

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Abstract

The aim of this paper is to present ways of fostering a creative mindset among translation students through introduction of song translation in translation training courses at the MA level. The translation task proposed in this study is presented as a comprehensive activity, incorporating elements of translation analysis and AI literacy. The proposal for encouraging creativity in translation is understood here not only merely as producing creative content, but also as a creative attitude to a given task. Creativity on behalf of the translator is particularly important in the digital era when neural machine translation (NMT) produces an outcome almost equal to human performance, and ChatGPT generates information in any language. Novice translators should be made aware that in the near future repetitive and controlled content will be processed by highly efficient NMT systems; however, high quality human translation will always be needed in the areas requiring risk awareness, confidentiality, and creativity. Therefore, integrating AI literacy activities into translation training is essential to equip future translators with the critical thinking and adaptability necessary to thrive in this evolving technological landscape.

Keywords: translation training, creativity, AI, creative shifts in translation

Streszczenie

Rozwijanie kreatywności studentów na zajęciach z przekładu w epoce sztucznej inteligencji

Celem niniejszego artykułu jest przedstawienie propozycji kształtowania kreatywnego podejścia do tłumaczenia tekstu poprzez wprowadzenie do programu studiów magisterskich zajęć opartych się na przekładzie piosenek. Zajęcia tłumaczeniowe opisane w artykule przygotowano z myślą o połączeniu kilku elementów dydaktycznych w ramach ćwiczenia obejmującego krytyczną analizę tekstu, przekład na język polski oraz podstawy pracy z narzędziami opartymi na sztucznej inteligencji. Rozwijanie kreatywności w przekładzie jest rozumiane tutaj nie tylko jako tworzenie oryginalnych treści, ale także jako przejaw kreatywnego podejścia do wykonywanego zadania. Kreatywność tłumacza wydaje się szczególnie istotna w erze cyfrowej, gdy neuronowe tłumaczenie maszynowe (NMT) generuje wyniki niemal dorównujące pracy człowieka, a ChatGPT produkuje informacje w dowolnym języku. Początkujący tłumacze powinni być świadomi faktu, że w najbliższej przyszłości powtarzalne i rutynowe treści będą sprawnie przetwarzane przez wysoce wydajne systemy

NMT. Jednakże wydaje się, że wysokiej jakości tłumaczenie wykonywane przez człowieka będzie zawsze wymagane w przypadku tekstów wymagających absolutnej precyzji, materiałów poufnych oraz treści kreatywnych. Dlatego istotne jest, aby zajęcia przekładu obejmowały również podstawy pracy z narzędziami opartymi na sztucznej inteligencji. Pozwoli to rozwinąć u przyszłych tłumaczy krytyczne myślenie i zdolność adaptacji, dzięki czemu będą mieli szansę odnieść sukces na dynamicznie zmieniającym się rynku pracy.

Słowa kluczowe: kształcenie tłumaczy, kreatywność, AI, kreatywne przesunięcia w przekładzie

1. Introduction

Artificial Intelligence (AI) has emerged as a transformative force within the field of translation. By leveraging vast datasets of text and speech, AI-powered tools facilitate the translation of languages with unprecedented speed and accuracy. AI's ability to process substantial volumes of content streamlines translation projects, enhancing their efficiency and cost-effectiveness. While AI does not supplant the need for human linguistic expertise, it serves as a potent tool for translators, enabling them to concentrate on intricate nuances and the creative dimensions of their work.

The rise of Artificial Intelligence and digital translation tools presents a unique challenge for translation pedagogy. While these technologies offer undeniable advantages in efficiency and accessibility, they can overshadow the importance of human judgment and the nuanced understanding of cultural context that remain essential for high-quality translation. Striking a balance between leveraging these advancements and equipping students with the critical thinking and analytical skills necessary to excel in a technology-driven translation landscape is a key challenge for educators in this new era.

This paper examines the potential of combining creativity boosting exercises with digital literacy training in translation classes. The aim of incorporating such activities into translation courses is to enhance creativity among student translators and improve their digital literacy. This pedagogical strategy not only advocates for the generation of original translations but also promotes the development of a versatile approach to problem-solving. In an era dominated by advancements in neural machine translation (NMT) systems, which approach the quality of human translations, and the advent of multilingual generation tools like ChatGPT, fostering such creative aptitudes is vital. As NMT systems increasingly handle standard translation tasks of controlled texts with proficiency, it is crucial for future translators to recognize that high-quality human translation continues to be essential in domains that

require careful risk management, the handling of sensitive information, and distinctive expression.

The burgeoning landscape of translation necessitates the integration of AI literacy into translator training courses. Market demands are shifting towards tasks requiring human expertise in nuanced communication and creative adaptation, as opposed to rote, easily automatable content. The widespread availability of AI tools such as neural machine translation (NMT) necessitates translator proficiency in evaluating and leveraging these technologies for optimal efficiency. While novice translators must hone fundamental translation skills, neglecting AI literacy hinders their future competitiveness. Understanding AI's capabilities and limitations empowers translators to navigate the evolving market, optimize workflows, and focus their creative energies on tasks that require a uniquely human touch.

The aim of this article is to underscore the paramount importance of enhancing creativity in translation training, particularly in an epoch where AI-generated translations rival human translations in quality and attempts are underway to employ AI tools in translating creative texts such as Shakespearean plays (Hu and Li 2023). It is crucial to equip translation students with a distinct skill set that not only enables them to thrive in the evolving translation market but also to leverage technological advancements effectively. The objective is not to be supplanted by technology, but rather to harness its potential optimally.

The exercises presented herein serve as exemplars of pedagogical approaches that underscore the intrinsically human nature of creativity in translation, while concurrently exposing the current limitations of technological tools. These activities are designed to foster critical thinking, adaptability, and innovative problem-solving, attributes that are fundamental to navigating the complexities of translation in the digital age.

By integrating such exercises into the curriculum, translation programs can empower students to transcend the role of mere linguistic conduits and evolve into creative interpreters of meaning. This approach not only enhances the quality of translations but also ensures the continued relevance of human translators in an increasingly automated landscape. Furthermore, it cultivates a deeper appreciation for the nuances of language and culture, thereby enriching the overall translation process.

This paper advocates for a paradigm shift in translation education that prioritizes the cultivation of creativity and critical thinking. By equipping students with the tools to embrace technological advancements while honing their innate creative abilities, we can ensure the

continued vitality and relevance of the translation profession in the face of evolving technological landscapes.

2. Creativity and translation

Within Translation Studies, researchers investigate creativity from two distinct angles: by analyzing the translation process itself, or by scrutinizing the final product, the target text. The studies on creative processes usually focus on analysing cognitive processes employed by translators while working. Drawing upon psychological principles, Paul Kussmaul (1991; 1995; 2000) significantly advanced the understanding of the creative aspects inherent within translation. He delineated four distinct phases of the creative process: preparation (thorough engagement with the source text), incubation (internal exploration of conceptual knowledge), illumination (the generation of solutions), and evaluation (critical assessment of these solutions). These cognitive stages can be empirically investigated through process recording methods, such as think-aloud protocols (TAP data, as explored by Lörcher in 2005) and key-logging studies (investigated by Heiden in 2005). Nevertheless, this type of analysis inherently involves some degree of subjectivity in judgment, which necessitates the use of multiple evaluators to mitigate this issue (Hewson 2006).

The other research path, focusing on the translation output, requires establishing certain clear criteria defining the creativity. Kussmaul (2000: 118) argued that to achieve creativity, translations need to demonstrate originality and an unexpected quality, yet these must be carefully balanced with appropriateness for the target audience and context. The task of measuring creativity has long seemed challenging due to the perceived difficulty of quantifying an inherently subjective quality of the text. Nonetheless, Gerrit Bayer-Hohenwarter has proposed criteria for measuring and promoting translational creativity, focusing on the concept of creative shifts (2009; 2010; 2011). Although the first mention of creative shifts was introduced by Kussmaul in his process analysis on a cognitive level, Bayer-Hohenwarter (2011) systematized and provided the most detailed and exhaustive method to measure creativity in the translation product. Creative shifts in this approach are cognitive categories as opposed to traditional shift concepts like “addition,” “change” or “omission” that are form-oriented categories only. Bayer-Hohenwarter proposes two levels of creative shifts, primary shifts = characterized by semantic changes concerning the abstraction level, and include abstraction, concretization and modification; and secondary, optional, shifts, that are

used even if “routine” or “literal” translations would be acceptable: those shifts include explanation, emphasizing, change of perspective, and enrichment.

The complex relationship between creativity and translation within scholarly discourse has been summarized by O'Sullivan (2013). As she points out, translation was historically underappreciated as a derivative activity compared to original authorship, and the concept of creativity was sometimes invoked to elevate its status. However, nowadays translation seems to be increasingly often recognized as inherently encompassing creative elements. This key question of whether creativity functions as something exceeding “standard” translation processes or is inherent to all translation processes still remains unresolved. Some researchers view creativity as essential for effective translation production, akin to the “bread-and-butter” of the practice (O'Sullivan 2013). Michel Ballard (1997: 86) considers translation to be a fundamentally creative activity, recognizing that the inherent shifts and transformations involved in linguistic transfer constitute an act of creation. This idea is also supported by Malmkjær (2019: 3), who claims that translation is an inherently creative art form that can produce valuable artistic results. Others emphasize “translational novelty,” suggesting creativity involves active choices by the translator (Bayer-Hohenwarter, 2009). However, creativity remains an imprecise concept in Translation Studies, often used without clear definitions and variously understood as either fundamental to everyday translation or as signifying exceptional innovation. Nevertheless, even without a precise definition of the term, creativity is considered a vital skill for translators, as the act of translation is broadly understood as a problem-solving endeavour demanding the contributions of creative individuals (Rojo López et al. 2021).

Research in this area indicates that creativity can be fostered (Kusssmaul 1995; Hewson 2016). Since creative processes mirror human cognition, creativity is viewed as a universal human capacity that can be enhanced through targeted interventions (Kusssmaul 1995: 52; Robinson 1998, 2005; Henriksen et al. 2016: 34). The importance of emphasizing development of creative understanding among novice translators has been postulated in literature, especially given the fact that inexperienced translators can feel paralyzed by the seemingly perfect and unchangeable nature of the source text (Hewson 2016: 19). In the study exploring the impact of AI-powered tools on the creativity in translation, Guerberof-Arenas and Dimitris Asimakoulas point out similarities between translation and creative writing, proposing concepts and methods for teaching creative skills grounded in social sciences research, proving that in a rapidly evolving digital environment, “creativity partially consists in (de)selecting appropriate and effective solutions in a given context” (2024: 241). The

development of creative skills can be also achieved using other approaches, for instance by introducing a cognitive model of text analysis (Filar 2016) to effectively guide students in developing their ability to deeply and creatively understand the source text, leading to more accurate and nuanced translation. Similarly Hewson (2016), while discussing main obstacles to creative translation in a translation classroom, starts with the problem of trainees struggling to recognize culturally specific references or nuances of meaning in the source text. He also claims that the perceived perfection of the source text can paralyze trainees, making it difficult to start translating. Additional challenges mentioned by Hewson include received ideas about translation that can lead trainees to unconsciously adopt strategies like literal translation, and struggling to find a specific “voice” in the target language, which requires a creative approach. To help overcome these challenges, Hewson proposed loosening the usual accuracy and conformity constraints in translation classes, suggesting a bolder approach, encouraging students to explore the target language’s creative potential and produce unpredictable translations, aiming for interpretations in line with the source text’s salient characteristics. This pedagogical approach, prioritizing fostering creativity in translation over strict adherence to accuracy and language conventions, was employed in the study presented in this paper, particularly relevant to the aspect of translation practice in which human translators currently outperform machines.

The emergence of neural machine translation systems and AI-generated translation texts has sparked a debate on the concept of creativity within Translation Studies. While AI models have demonstrated impressive capabilities in producing fluent and accurate translations, their ability to generate truly creative output remains a subject of ongoing research.

One of the first research projects addressing the issue of creativity in machine-generated translation was carried out by Guerberof Arenas (2020), who examined the translation of the story *Murder in the Mall* by Sherwin B. Nuland from English into Catalan and Dutch, using three methods: machine translation (MT), post-editing of machine translation (PE), and human translation from scratch (HT). The goal of the project was to measure creativity, defined as a combination of novelty and acceptability, in each translation. The study found that human translation from scratch (HT) consistently achieved the highest creativity score, followed by post-editing of machine translation (PE), with raw machine translation (MT) scoring the lowest. The results suggest that current neural MT systems, even when trained on literary data, lack the ability to produce creative translations and tend to offer very literal solutions. Additionally, the study showed that using MT as a starting point for post-editing appears to limit the creativity of human translators, often resulting in subpar translations that are not

suitable for publication. Similar findings were obtained in another study by Guerberof Arenas and Toral (2022), proving again that human translation tends to have higher creativity than machine translation or post-editing. This research shows that machine-generated translations lack the nuanced understanding of cultural context and the ability to make subjective choices that are characteristic of human creativity in translation.

In a similar vein, the research by Jiménez-Crespo (2024) delves into the impact of AI and Large Language Models (LLMs) on the translation landscape. While AI can generate content, studies have shown that human-generated content is perceived as more creative. This distinction highlights the importance of human expertise in creative tasks like translation. Jiménez-Crespo emphasizes the potential of Human-Centered AI (HCAI) and cognitive augmentation approaches to enhance human capabilities rather than replace them. This perspective aligns with the growing recognition of the “human touch” in translation, especially in creative tasks, underscoring the unique value that human creativity and expertise bring to the translation process, particularly in the age of AI.

However, another study, conducted by Hu and Li (2023) demonstrated creative potential of AI-powered translation system, DeepL, when translating Shakespeare’s *Coriolanus* and *The Merchant of Venice* into Chinese. The results demonstrated that DeepL not only translated the plays with over 80% accuracy and fluency, which shows the real potential of AI for translating even difficult texts between very different languages, but also proved to be creative with its translations, using techniques like adding words for clarity, shifting perspectives, and using specific Chinese grammar structures to get the meaning across. Nevertheless, 80% accuracy reveals that the system is not perfect, since the researchers identified some errors, including some overly literal translations. This proves that while AI is becoming very good at translating, it is not quite ready to replace human translators just yet.

Other researchers suggest that AI models can indeed exhibit creativity, albeit in a different form than human translators, by generating novel combinations of words and phrases. For example, the work of Gao et al. (2024) focuses on the translation of Chinese poetry into English, a task traditionally considered to require deep cultural understanding and linguistic nuance. They find that ChatGPT is able to generate novel combinations of words and phrases that capture the essence of the original poems while also offering fresh interpretations, although the translations are not free from fidelity issues. In their study, ChatGPT demonstrates understanding of specific phrases when asked independently, but fails to apply this knowledge during actual translations.

An interesting perspective is presented in the research by Runco (2023), who argues that AI cannot be truly creative. After examining the claim of AI creativity through the lens of various creativity theories and concepts, he argues that AI output, while sometimes original and effective, lacks several key characteristics of human creativity, such as self-actualization and emergence, and therefore proposes to view AI output as a form of pseudo-creativity.

On the other hand, as Milena Škobo (2023) observes in her research aimed at examining advancements in AI and machine translation within the context of literary translation, the integration of AI into translation offers significant benefits, including time-saving through draft generation, improved consistency and accuracy with AI-powered terminology management. However, AI struggles with the complex nuances, metaphors, and figurative language found in literary works, highlighting the necessity of human expertise, creativity, and critical thinking to produce translations that capture the artistic value of the original text. Škobo concludes that human expertise, creativity, and critical thinking are crucial for producing translations that capture the artistic value of the original work. At this point, Škobo emphasises the need to re-evaluate the roles of teachers and translation students, claiming that AI is transforming education, but it cannot supplant the role of teachers in guiding students' ethical development and providing a nurturing learning environment. Education encompasses psychological, social, and political dimensions that AI cannot fully address, while literature and art remain essential for cultivating critical thinking and ethical principles. Although AI offers valuable support, human involvement remains crucial in education.

These references explore different perspectives on the role of creativity in AI-generated translation and offer valuable insights into the ongoing debate within Translation Studies. By examining the strengths and limitations of AI models in this context, researchers can contribute to a deeper understanding of the complex interplay between human and machine translation, and ultimately enhance the quality and effectiveness of translation practices in the digital age, without losing sight of the human element in this process. The trajectory and findings of translation studies regarding new technologies and creativity have significant implications for translator training programmes and served as a direct catalyst for the research presented in this paper.

3. Materials and methods

This study aimed to ascertain whether translations crafted by MA translation students possess a distinct creative element, and the extent to which this sets human translation apart from

output generated by artificially intelligent systems. To investigate this, this study was guided by the following research questions:

1. How does the creative element in translations produced by MA translation students compare to those generated by AI systems, particularly when evaluated against pre-established criteria for creative translation?
2. To what extent does anchoring bias, specifically the influence of initial AI-generated translations, affect the creative choices made by MA translation students in subsequent revisions of their own translations?
3. To what extent does the use of multimodal source material, such as musical theatre, enhance the creative engagement of translation students in their work?

To address these questions, the translation task was completed by 45 students as part of their audiovisual translation course. To assess the effectiveness of the class translation activity in fostering creativity, a systematic comparison of student translations with those generated by AI was necessary. This comparison was not a subjective judgment of “better” or “worse”, but rather an analysis based on pre-established criteria for creative translation. Therefore, the criteria selected for the study followed the classification of creative shifts proposed by Bayer-Hohenwarter (2009). By employing a clear rubric grounded in these criteria, students could actively participate in evaluating their own work and that generated by AI-powered tools. This process not only fosters transparency in the assessment but also allows students to identify areas where their human creativity surpasses the capabilities of AI. Furthermore, by comparing their translations to the often literal and formulaic output of AI, students gain a heightened awareness of their own potential for creative problem-solving and expression within the translation process. This self-awareness becomes a crucial tool for navigating the evolving landscape of translation, where human creativity remains a key differentiator.

The source material selected for the project came from *Six: The Musical* (All Musicals (2024a and b)). The genre of a musical was chosen because of the multimodal nature of musical theatre, which could provide insights into the second research question regarding the impact of multimodal source material on creative engagement. In a musical, consideration must be given to the limitations imposed by the music as well as the plot, stage movements, or the need to differentiate the registers used by characters. While challenging, it offers visual and sound cues that promote creative thinking. Songs can be an effective starting point for creative translation as their multisensory nature allows for deeper student engagement. The combination of listening to lyrics and potentially viewing a video clip creates a richer sensory experience, potentially increasing motivation and involvement in the creative task. This aligns

with Kelly Washbourne's (2013: 57-58) recommendations for incorporating sound libraries in translation courses. Students were assigned the task of preparing a singable version of two songs from the musical, the parts performed by Catherine of Aragon ("No Way") and Ann Boleyn ("Don't Lose Ur Head"). Given that students could choose one of the two source texts and they had the option to work independently or in pairs, the resulting data set comprised 33 target translations: fifteen versions the "Don't Lose Ur Head" lyrics and eighteen translations of "No Way". Class activities included an additional step of generating AI translations using a free version of ChatGPT 3.5 by Open AI. The translations prepared by students were compared and discussed in the class, as well as contrasted with the machine-generated text, providing data for the analysis of the first research question. The translated versions were analysed following the creativity markers proposed by Bayer-Hohenwarter (2009, 2010, 2011). Selected translations prepared by the students were converted to the.srt format and displayed along with the recording of the song for class presentations, to enable the assessment of task performance in terms of singability.

4. Results

Translations produced by AI with a basic prompt ("Translate the following lyrics into Polish") proved to be accurate with minor translational errors primarily stemming from the challenges of the Polish language. In both texts of the total word count of 890, there were just three grammatical errors related to the feminine verb endings ("powiedziałeś" instead of "powiedziałas", "straciłem" instead of "straciłam" and "słyszałem" instead of "słyszałam"). The preference for masculine verb endings in machine translation in the absence of clear contextual cues provides direct evidence of gender bias within these systems and could be expected. ChatGPT also used a non-existent form of the imperfective verb "nie tracaj" instead of "nie trać" as a translation of "don't lose", and was not able to correctly render the adjective "judgemental", producing instead a form of active participle "sądzący". The limited number of linguistic errors in the translation facilitated their identification and correction during post-editing, and the absence of accuracy issues supports the assessment that the machine-generated output was of satisfactory quality. However, analysis of creative shifts revealed a high degree of fidelity to the source text, lacking any significant creative modifications. Notably, the AI's linguistic selections upheld the text's overall tone, including some unconventional translation choices (e.g. "viral" translated as "wiralowy" instead of "wirusowy", which would seem to be

the first choice in a machine-generated text, or “Here we go” rendered as colloquial “No to lecimy”, providing the solution seamlessly aligning with the context).

The AI-generated version served as the basis for classroom discussion, establishing a reference point for further work. Armed with the understanding that strict adherence to the source text was not the objective, students acknowledged the importance of employing creative adjustments, especially to optimize the text for musical performance.

The analysis of students’ work followed the approach of Bayer-Hohenwarter (2009), who proposes three primary indicators for establishing an empirical framework for exploring creativity: novelty, fluency and spontaneity, and flexibility. In her research, novelty is measured by the rarity of occurrence within a text corpus, fluency and spontaneity are determined by the time taken between reading source text and producing target text, while flexibility, regarded as a hallmark indicator of creativity, is evidenced by the translator’s application of strategic actions: abstraction, modification (modulation), and concretization through explicitation. The application of these strategies to achieve novelty is hypothesized to be associated with increased cognitive load. This study focused on analyzing two indicators, novelty and flexibility, observable in the translation product (target text). Fluency, requiring a different methodological approach, such as think-aloud protocols or key-logging, to capture the translation process, was not examined in this research.

In their translations, the students demonstrated a lot of creativity and resourcefulness, which might be demonstrated using the novelty dimension. For instance, the translation of the title and the main phrase for the “No Way” lyrics rendered nine different versions, such as: “Zapomnij” [Forget it], “Nie zgadzam się”, “Ja nie zgadzam się” [I disagree], “Oj nie” [Oh no], “O nie, skarbie” [Oh no, baby], “No nie” [Well, no], “Nie dam się” [I won’t give up], “Nie ma mowy” [There is no way] and even “Spadaj” [Get lost]. The translations of the main phrase in the “Don’t Lose Ur Head” refrain, “Sorry, not sorry” demonstrated an equally high level of novelty, with seven different renderings of the phrase (e.g. “Sorki, nie sorki”, “Przykro mi, a jednak nie”, “Sorry, ale chyba nie”, “Przepraszam, albo nie”, “Przykro czy nie”, “Przykro mi, choć nie przykro mi”). However, an additional difficulty in this case was that the phrase “sorry not sorry” also functions in its original English version in the language of young Polish generation, which probably encouraged the translators to leave this phrase untranslated in four cases.

The flexibility indicator of creativity in translated texts can be effectively measured through a comprehensive analysis of student translation output, including the identification and classification of creative shifts employed. While the degree of creative shifts varied

among individuals, all translations demonstrated innovative solutions and non-standard approaches to translational challenges, suggesting that even within a structured educational context, the potential for creative expression in translation is evident.

Students' translations exhibited the complete spectrum of primary and secondary creative modifications described in Bayer-Hohenwarter's (2009, 2011) model. The first group, referred to as primary shifts, includes three procedures operating in the level of abstraction: concretizations, abstractions and modifications (modulations). As Bayer-Hohenwarter explains, the translator's use of abstraction, modification or concretization to achieve novelty demonstrates flexibility, a key indicator of creativity in translation. To achieve a translation that effectively serves its intended purpose, translators might—and in some cases, are required to—move beyond simple word-for-word translations that demand less mental effort. Instead, they may need to employ more complex strategies that involve understanding the deeper meaning of the source text beyond its literal wording. These strategies are assumed to require greater cognitive effort than reproduction, the term used for non-creative translation.

A close analysis of specific examples of particular solutions classified as primary shifts applied by translation trainees is presented below:

- **Concretizations:** This technique involves replacing a general idea with a more specific one. For the phrase “No matter what I heard, I didn't say a word”, students offered translations such as “Mimo wszystkich tych plotek” [Despite all the gossip], “Choć o kłamstwach wiedziałam” [Though I knew of the lies], “Słyszac o twoich wyskokach” [Hearing about your escapades], or “Choć sto raz mi skłamałeś” [Though you lied a hundred times]. These choices provide specific reasons why the speaker chose silence. The application of concretizations in such situations requires the extralinguistic knowledge from the translator and the awareness of the overall context of the source material. The same is true for another example of explanation observed in two translations of the verse “So you read a Bible verse that I'm cursed”, rendered as “Mówisz, że w Księdze Kapłańskiej, że jestem u Boga w niełasce” [You say that in the Book of Leviticus, that I am in disgrace with God] and “Twierdzisz, że jestem przeklęta, przez Kapłańską wyklęta” [You say that I am damned, by the Leviticus cursed], where students pointed out to the specific Book of the Bible, namely the Book of Leviticus, relevant in the context of Henry and Catherine of Aragon. The application of such a creative solution allows for the preservation of factual and historical accuracy while granting translators the freedom to deviate from literal meanings, as long as they remain faithful to the historical context of the source material.

- **Abstractions:** These modifications render a concept less specific, using more vague or general solutions, often implemented for lyrical flow. For example, the line “1522 came straight to the UK” was transformed into “XVI wiek, do UK ciągnęło mnie” [The 16th century, to the UK I was drawn], substituting the century for the specific year. In this case, the translator applied an abstraction subclassified as superordinate term (Guberberof Arenas and Toral 2022: 9) as opposed to paraphrase. A paraphrase subclass of abstraction was identified in the translation of the following verse: “You made me a wife, so I'll be queen 'til the end of my life”, which was rendered as “To ze mną ożeniłeś się, więc zmiana nie wchodzi w grę”. [I am the one you married, so a change is not an option]. Interestingly, abstractions, which correspond to the generalisations in the classification by Vinay and Darbelnet (1995), were not as frequent as concretizations or modification. This may suggest that students had a good grasp of the cultural nuances of the source text and could convey them accurately in the Polish language. This might also mean that they are not afraid to use their creativity to find innovative solutions that could best capture the essence of the original lyrics.
- **Modifications, consisting of cultural, situational or historical adjustments:** The translations also demonstrated these adjustments, reflecting cultural awareness. The phrase “XO baby” was translated as “Lofki kiski”, which resonates with contemporary Polish youth while preserving a similar level of abstraction to the original. “XO”, originally meaning in English “hugs and kisses”, is no longer used for this purpose, as the authors of this particular translation explained, since this abbreviation is considered to belong to older generations. The phrase “Lofki kiski”, being a Polonised, diminutive version of “loves and kisses”, is apparently the phrase used by Polish representatives of generation Z.

The optional, secondary creative shifts, strategies used to intensify, enrich, or explicate particular aspects of meaning in cases when literal rendering provides an acceptable solution (Bayer-Hohenwarter 2011, further described in Rojo López et al. 2019: 103 and Cifuentes-Férez and Cutillas 2018: 349) were also quite often employed by students. Two specific types were prevailing in this category:

- **Explanations:** Students frequently made implicit information from the source text more explicit in their translations. For example, in the line “And soon my daddy said ‘You should try and get ahead!’”, the underlying advice to pursue a wealthy partner was clarified in the translation “Mój tatko szepnął słowa: ‘Uwiedz go, do góry głowa’” [My

daddy whispered the words: ‘Seduce him, lift your head high’]. In this example, the attempt to preserve in the translation the notion of “head”, hidden in the English “ahead”, might be used with an additional purpose, namely to keep the imagery consistent with the refrain that follows, i.e. “Don't lose your head”. Another noteworthy example refers to the historical background of the lyrics, namely when Catherine of Aragon sings “You wanna replace me baby”, the translator explicitly used the name of the next wife of Henry in the line “Chcesz zastąpić mnie Anną” [You want to replace me with Ann]. The application of explanations in such instances necessitates a heightened linguistic awareness and contextual understanding to ensure historical accuracy. Such nuanced interpretation and adaptation is currently beyond the capabilities of machine translation and AI-generated text without explicit prompt engineering to provide the necessary contextual information.

- **Emphasizing:** This strategy employed in the translation process entails the introduction of a novel element that is not present in the source text, with the intention of amplifying a specific aspect of the original message. This can be observed in the translation of the phrase “You wanna replace me baby” into Polish as “Chcesz mnie wymienić jak zepsutą zabawkę” [You want to replace me like a broken toy]. In this instance, the translator has incorporated the simile “like a broken toy”, which is absent in the original English phrase. This addition serves to underscore the speaker's feeling of being dispensable or easily replaceable, thereby enhancing the emotional impact of the translated utterance. Emphasizing requires a deep understanding of both the source and target languages. The translator must be able to identify the nuances of the original message and find appropriate linguistic devices in the target language that can effectively amplify those nuances. The use of this strategy involves working with the text as a whole, understanding its overall message and purpose. The translator must be able to identify the specific aspects of the text that are most important to convey and decide how to best emphasize them in the target text.

The creative shifts that were identified less frequently included changes of perspective and enrichments.

- A change in perspective fundamentally alters how a situation is presented. For instance, the line “I've never lost control” was cleverly transformed into “Pod kontrolą wszystko mam” [I have everything under control]. This shift emphasizes the sense of control held by the character, Catherine of Aragon, eliminating the negative meaning

from the source text, since the literal rendering of this English phrase into Polish would involve the use of double negative, e.g. “Nigdy nie straciłam kontroli”.

- Enrichments, on the other hand, involve adding completely original contributions, such as metaphors. In the translation of “And even though you've had your fun running around with some pretty young thing” as “Choć lubiłeś zabawiać się z młódkami, to jednak twój zegar już tyka” [Though you liked to play with young girls, your clock is already ticking], the metaphor of time as a clock is introduced. This adds a sense of impending consequence that was not explicitly present in the original line. Another example of adding a metaphor can be identified in the translation of the verse “If you thought it'd be funny, to send me to a nunnery” rendered as “To nikogo nie bawi, że przymierzasz mi habit” [It amuses no one that you are trying the habit on me], where the image of Catherine of Aragon as a doll that can be dressed as a nun is evoked. Metaphors can create vivid imagery and evoke emotions in the reader, making the translation more engaging and memorable. Even if the source text is straightforward, a well-placed metaphor can add complexity and subtlety to the translation, therefore the use of such tools demonstrates the ability to think outside the box and find innovative solutions to linguistic and cultural challenges.

It must be added at this point that students' translations were not completely error-free. Unconventional syntax, non-standard collocations, application of non-existent verb forms, and frequently imposed incorrect word stress in an attempt to maintain the singability of the text could be identified target texts. Such translations, while occasionally approaching the limits of acceptability, were not considered incorrect given the poetic and entertaining nature of the source text and the inherent challenges of translating lyrics. The primary objective of the exercise was to encourage creative and unconventional thinking, and this objective was clearly attained. As Bayer-Hohenwarter suggests (2011: 686), successful translation outcome does not necessarily correlate with a high frequency of creative shifts, but with “the ability to decide efficiently when to use a creative shift and when a mere reproduction is sufficient.” Consequently, it can be inferred that even a basic comprehension of creative shifts and their possible uses can notably improve translation proficiency and this is an area that should be permanently included in a translation training curriculum.

5. Conclusions

In translating songs from the musical *Six*, students demonstrated a wide range of creative modifications, showcasing their resourcefulness and non-standard approaches to translation problems. Overall, the students effectively employed a variety of creative strategies, enriching their translations and demonstrating their ability to adapt and enhance the original text while maintaining its essence. This shows that in comparison to translations generated by AI systems at the beginning of the activity, translations produced by MA translation students clearly demonstrated indicators of creativity evaluated against the pre-established criteria in accordance with Bayer-Hohenwarter (2009, 2010).

The second research question asked in this study concerned the anchoring bias, namely the influence of AI-generated translations at the beginning of the activity on the creative choices made by MA translation students in the revisions of their own translations. In machine translation post-editing, anchoring bias denotes the predisposition of human post-editors to be excessively swayed by the initial machine-generated translation. This bias can diminish the cognitive effort necessary for post-editing by inclining post-editors to adopt the initial output as a foundation, rather than engaging with it from a fresh perspective, which originates from the human inclination to overly focus on the initial piece of information acquired or observed (Alexander 2024). As the analysis of the students' work demonstrated, none of them used the AI-generated or machine-translated text as their first draft, most probably because the aim of the activity – to produce creative translations – was clearly explained at the beginning of the activity and the AI-generated translation output was analysed as a group activity and evaluated in terms of creative shifts. In the class discussion that followed the translation task, some students admitted using machine translation (DeepL) to understand “the hidden meaning” of phrases they could not understand. Nevertheless, the translation solutions, found in machine-translated or AI-generated output and usually consisting in the literal rendering of the source lyrics, were not identified in students' work. This seems to contradict the claim that working with machine-translated texts affects the creativity of translators (e.g. demonstrated in the study by Guerberof-Arenas and Toral 2020), most probably because the machine-generated output in the activity described in this paper was not considered to be fit for purpose, as it did not demonstrate any creative solutions. However, the findings of this study align with the more recent work of Guerberof-Arenas et al. (2024), which demonstrated that training in machine translation post-editing did not hinder students' creativity; in fact, students became more inclined to incorporate creative shifts in their translations. This suggests that a proficient

integration of knowledge regarding the potential of new technologies in translation, alongside an understanding of the creative challenges faced by translators, can substantially enhance overall translation competence.

It seems that the use of multimodal source material (as per the third research question), such as lyrics from the musical embedded in a historical context, had more impact on enhancing the creative involvement of translation students than the AI-generated version of the texts. This is demonstrated by a creative problem-solving approach to repetitive phrases, e.g. in the refrain, students' focus on singability, accompanied by providing them with opportunities for expression and performance of the translated lyrics. It proved particularly beneficial to set the context of the source material in a background familiar to the translators, making it easier for them to go beyond the literal layer of the text, as was observed in solutions employing concretizations and enrichments. In view of the results obtained in this study, it can be claimed that incorporating multimodal source material like musical theatre into translation education offers a multifaceted approach to learning that enhances creativity, problem-solving, and engagement. By working with diverse elements of communication and performance, students develop a richer understanding of translation as an art form, enabling them to produce more innovative and culturally sensitive translations.

This research project underscores the inherent creative capacity exhibited by translation students, aligning with previous findings that highlight the importance of creativity in translation (Kussmaul 1995; Robinson 2005). The analysis of their work reveals a remarkable aptitude for applying diverse creative shifts, showcasing an understanding of how to manipulate source material to achieve maximum impact in the target language. By skilfully introducing enrichments, students transcend literal translation techniques, producing distinctive and compelling results that distinguish their work from AI-generated translations.

Moreover, students demonstrate a keen awareness of the imperative to differentiate their translations from those produced by AI technology. Through a deliberate departure from strictly literal translation (a task at which neural machine translation excels), they embrace creative approaches essential for generating unique and culturally appropriate translations. This not only sharpens their core translation skills but also enhances their critical awareness and digital literacy, fostering a deeper understanding of the indispensable "human touch" required in contemporary translation practices, echoing the arguments of Jimenez-Crespo (2024).

The results obtained in this project differ from findings on creativity among translation students presented in previous studies. Bayer-Hohenwarter's research (2009) indicates that

first-year students frequently rely on reproduction as a translation strategy, neglecting to employ creative approaches and consequently generating fewer intermediary solutions. This approach results in a lack of novelty and demonstrates limited flexibility in their translation process. However, in the study described in this paper, the focus of the activity was on producing creative solutions, showing that reproduction, i.e. rendering the source text with the same idea or image, is not a desirable outcome, as it can be easily generated by NMT or AI tools. This approach accounts for the frequent presence of creative shifts and non-standard translation solutions observed in the work of first-year MA students. Furthermore, it underscores the potential to nurture creativity through the implementation of thoughtfully designed classroom activities, materials, and motivational strategies. In Bayer-Hohenwarter's study, erroneous target texts were not excluded from the analysis, as the presence of creative shifts was still deemed indicative of creativity. The author of this study was similarly motivated by the principle of stimulating creativity, even in instances where the resulting creative solutions may not be considered optimal.

The utilization of engaging source material played a pivotal role in captivating students' interest and fostering a greater willingness to participate actively in the learning process. This heightened engagement led to the development of highly original contributions for class presentations, further solidifying the project's success.

This study exemplifies the benefits of a multi-faceted pedagogical approach to translation, aligning with the holistic approach advocated by Kiraly (2013). By seamlessly integrating comparative source and target text analysis, the effective use of translation studies terminology, a critical evaluation of various translation approaches, and technical subtitling skills, the project achieved a comprehensive set of objectives. This model serves as a testament to the potential for consolidating diverse learning goals within a single, structured activity, thereby optimizing instructional time and maximizing student learning outcomes.

The creative shifts examined in this study are phenomena that can be categorized within the dimension of creative flexibility. As Bayer-Hohenwarter suggests, these shifts, to be successful and yield an adequate translation, necessitate a profound and genuine understanding of the source text. This comprehension, unlike the mere processing of surface-level language, is considered a creative process in its own right, distinct from what machines can achieve.

The implications of this research extend beyond the classroom, offering valuable insights for translation professionals and educators alike. By recognizing and nurturing the creative potential of translation students, we can ensure the continued relevance and value of human translation in an increasingly automated world. Moreover, the multi-faceted pedagogical

approach employed in this study can serve as a blueprint for future curriculum development, empowering students with a comprehensive skill set that prepares them for the challenges and opportunities of the modern translation landscape.

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