A POST-EDITING TURN IN TRANSLATOR EDUCATION: TOWARDS A CREATIVE CRAFTMANSHIP IN TRANSLATION

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Abstract

This study assesses the significant impact of post-editing on translators' creative decision-making in the translation process. The main concerns revolve around the quality of the final translation product and the freedom of the translator to exercise creativity in post-editing as opposed to relying on direct Machine Translation output. While some peers easily adapt to this era, others consider machine translation as an enemy that will eventually overpower human translation. The study adopts a qualitative, descriptive, and metanalytic approach using a cross-sectional case study design that makes use of a questionnaire, an ex-post facto/quasi-experiment to assess creative translation craftmanship in MTPE and HT. To assess the expectations and attitudes towards machine and post-editing translation platforms, the study draws its insights from creativity translation literature and the interpretive theory in translation studies. The study posits that preserving the artistic and cultural nuances of the source text, while allowing the translator's creative input to shine is a crucial factor in translation and is also an essential element in perpetuating human translation. The results of this study have implications for the development of the creative potentials of professional and trainee translators.

Keywords:

Creativity, Machine Translation, Human Translation, Post-Editing Translation.

1. Introduction

The rapid development of artificial intelligence (A1) has created new challenges for language services providers. As machine translation systems are making great strides, many language services have come to be supported or partially automated by A1. As translators in an increasingly globalized world are expected to translate huge number of texts to be delivered on short notice, there is a growing need to find solutions to cope with these challenges.

Advances in the field of translation and automation have led to the birth of a new discipline called post-editing, which refers to the process of making more changes to a text or file after it has already been through an automated translation process in order to render it more humanly intelligible. An increasing number of translators today prefer to revise automatically generated translations because it is time saving and stress free.

The advent of these new demands has been embraced with suspicion by many translators and interpreters. On the one hand, conservatives seem to resent the quasi-essential need for the intervention of automation in translation nowadays. According to them, this will only lead to the complete extinction of human translation in favour of automatic translation. On the other hand, some professionals acknowledge the positive influences of automatic translation as it enhances productivity, hence, it is time saving.

In spite of the above mixed feelings, post-editing is increasingly finding its way into translation studies research. In academia, machine translation (MT) and PE competences have been largely integrated into curricula under the European Master's in Translation (EMT) Competence Framework (EMT Expert Group, 2017).There is an increasing need to re-educate all stakeholders involved in the cycle of translation projects. In an era where automation is quite unavoidable, it has become crucial for translators to adapt (Perrine, 2020). The fact that MTPE has become the new market of translation worldwide is undeniable, consequently each actor involved in the translation process must critically understand the MTPE process and apply it correctly.

One of the most important advantages of MT is its time saving nature. However, is time saving an imperative for which translators should neglect quality? This inevitably leads to the question: What is the impact of post-editing on translators' creativity and quality of the final product? More specifically, how does post-editing influence translators' creative decision-making process? What are the factors that contribute to the enhancement of translators' creativity? What are the implications of post-editing on the quality and the artistic value of translated texts?

This study therefore seeks to compare the output of post-editing and human translation while focusing on creativity. It also takes an in-depth look at this relatively uncharted territory in translator training, which offers a number of insights into what these new developments might mean for translation practice and translator training respectively?

2. Literature Review

Post-editing education provides orientations towards designing learning experiences and assignments that help students to gain practice in using and applying specific and life-long competences that can be applicable in different work contexts. Four areas discussed in this section include: conceptual context of automation and post-editing, MT models and standard frameworks, and post-editing skills and activities.

2.1 Conceptual Context of Automation and Post-Editing.

Post-editing and automation are indeed sensitive topics in the translation world because they are two essential platforms that some translation professionals tend to resent, when in fact they are symbiotic and their need is unavoidable. Post-editing is the process of reviewing automatically generated translations in order to improve fluency and naturalness, while ensuring that the final product meets the desired quality standards. Since naturalness and fluency characterize human translation, it can, therefore, be understood that post-editing aims at improving automated translation to the level of human translation as much as possible.

One of the main differences between human translation (HT) and machine translation (MT) lies in the level of accuracy and understanding of nuances. While human translation is accurate, sensitive to cultural disparities and creative, machine translation on the other hand, is time saving and enhances productivity. Preserving the artistic and cultural nuances of the source material while allowing the translator's creative input to shine is a crucial factor in translation and is also an essential element advanced in defence of human translation.

Although A1 is now also permanently transforming free speech production through applications such as ChatGPT, machines have so far lacked the contextual understanding required for high quality transfers of nuanced, and form-conscious texts between languages and cultures. For the time being, one shortcoming of machine translation is the fact that texts can only be understood at the sentence level, not in their overall contexts. Nevertheless A1-based applications are becoming increasingly useful tools for humans. In fact, in many creative industries specialized in language mediation and text design, the use of text creation software is already inevitable.

2.2 MT models and standard frameworks

The dominant frameworks of Machine Translation (MT) research until the end of the 1980s was based on essentially linguistic rules of various kinds: rules for syntactic analysis, lexical rules, and rules for lexical transfer, rules for syntactic generation, rules for morphology, etc. The rule-based approach was most obvious in the dominant transfer systems (Ariane, Metal, SUSY, Mu and Eurotra), it was however, at the basis of all the various interlingua systems – both those which were essentially linguistics-oriented (DLT and Rosetta), and those which were knowledge-based (KANT)

As the 1990s progressed, it had become clear that different types of MT systems were required to meet the widely different translation needs. Those identified so far included the traditional MT systems for large organizations, usually within a restricted domain, and the translation tools and workstations (with MT modules as options), designed for professional translators, the cheap PC systems for occasional translations, the use of systems to obtain rough gist for the purposes of surveillance or information gathering, the use of MT for translating electronic messages, systems for monolinguals to translate standard messages into unknown languages, and systems for speech translation in restricted domains.

It is equally clear that as MT systems of many varieties became more widely known and used, the range of possible translation needs and possible types of MT systems will also become widely used and they will stimulate further research and development, quite probably in directions not yet envisioned.

2.3 Different Approaches to Machine Translation

This section describes some common approaches which machine translation adopted to translate a text from one language into another.

2.3.1 Ruled-based Machine Translation (RBMT)

In rule-based machine translation, linguistic rules and dictionaries are used to generate translations based on established language rules and structures. These rules define the means of transforming words and phrases of the source language into the target language. RBMT requires human experts to create and maintain these rules, which can be time-consuming and challenging. This platform often performs better for languages with well-defined grammatical rules and less ambiguity and less metaphors.

2.3.2 Statistical Machine Translation (SMT)

Statistical machine translation involves analyzing vast amounts of bilingual texts to identify patterns and probabilities for accurate translation. Instead of relying on linguistic rules, SMT uses statistical models to determine the most likely translations based on patterns observed in the data. It aligns source and target language segments to deduce translation patterns. SMT applies better to large data and can handle diverse language pairs. For example, In SMT the system might learn that "chien" often appears in the same context as "dog" in parallel bilingual texts leading to the translation of "chien" as "dog."

2.3.3 Syntax-Based Machine Translation (SBMT)

Syntax-based machine translation takes into account the syntactic structure of sentences to improve translation accuracy. It analyses the grammatical structure of the source sentence and generates a corresponding structure in the target language. SBMT can capture more complex relationships between words and phrases, allowing for translations that are more accurate. However, it requires sophisticated parsing techniques and can be computationally expensive. For example, SMBT learns the syntactic structure of a sentence and ensures that the subject and verb agreement is maintained in the translation for a more grammatically accurate output.

2.3.4 Neural Machine Translation (NMT)

Neural machine translation utilizes deep learning models particularly sequence-to-sequence models or transformer models to learn translation patterns from training data. NMT learns to generate translations by processing the entire sentence, considering the context and dependencies between words. It has demonstrated significant improvements in translation quality and fluency. NMT can handle long-range dependencies and produce natural translations. For example, NMT takes an input sentence like "le chiendors" and generates a translation like "the dog is sleeping" in English, capturing the context and idiomatic expression accurately.

2.3.5 Hybrid Machine Translation (HMT).

Hybrid machine translation may incorporate rule-based, statistical and neural components to enhance translation quality. For example, a hybrid system might use rule-based methods for handling specific linguistic phenomena, statistical models for general translation patterns, and neural models for generating fluent and contextually sensitive translations. For example, a hybrid system could use

a ruled-based approach for handling grammatical rules, statistical models for common phrases, and a neural model to generate fluent translation with improved context understanding.

2.3.6 Example-Based Machines Translation (EBMT)

Example-based machine translation relies on a database of previously translated sentences or phrases to generate translations. It searches for similar examples in the database and relieves the most relevant translations. EMBT is useful when dealing with specific domains or highly repetitive texts but may struggle with unseen or creative language usage. For example, if the sentence "le chien joue," has been previously translated as 'the dog is playing.' EBMT can retrieve that translation as a reference to translate a new sentence, "The dog is eating."

It has long been a goal of computer science to use computers to automatically translate text from one language to another. The continuous achievements in natural language processing, artificial intelligence, and computing power help us reach closer and closer to this goal. Thus, machine translation has become a viable tool in widespread use for the last decade.

2.4 Post-editing

Since 1972, post-editing has been gaining grounds as a professional practice on its own right. As the profile of a good post-editor is evolving with the practice itself as post-editing is gradually spreading worldwide, translators tend to become post-editors in order to cope with their tasks. Translation nowadays is a very challenging task, so many consumers expect much from professionals. To tackle these challenges, professionals rather rely on automatically generated translation to which they amend scenario, contextual and stylistic changes. In these ways they are more productive and easily cope with expectations.

Post-editing is the process of reviewing automatically generated translations in order to improve fluency and naturalness, while ensuring that the final product meets the desired quality standards. Since naturalness and fluency characterize human translation, one can therefore be understood that post-editing aims at improving automated translation to the level of human translation as much as possible.

Carl et al (2011) define post-editing as the revision of automatic translation to make it more acceptable for consumption. Raw machine translation is not consumable. Consequently, it is necessary for professional translators to revise machine translation output for a better output. The most important aspects translators usually emphasize on during this process are style, semantics and pragmatics. This is because, machines cannot situate context and meaning. Some professionals hold that, machine translation is even best appropriate for specialized texts because these texts are usually straightforward.

2.3.1 The Process of Post-Editing

Machine translation can be helpful if users understand how to make the most of it. It is important to know the perspectives of services buyers, translation vendors and translators on machine translation. Each group has a unique set of considerations that influences the approach to MTPE. However, the most important step in post-editing appears to be at the very beginning of the process. If the original text is already professional and of high language quality, the output shall naturally be. Consequently, amendments required shall not be voluminous.

The first step is pre-editing. The source text should be carefully revised to erase original errors and avoid problems along the line. It is important to make sure that the original text has as few spelling and grammatical errors as possible. During the pre-editing process, the terminology and formatting has to be consistent. The source text should be carefully prepared and well presented. Phase.com (2020) states that although machine translation is rapidly improving, there are certain steps that can be taken to improve output quality. Generally, MT works better with input that is clear and concise, (an ideal scene should be under 20 words), and have simple grammar.

Pre-editing is also very necessary because MT tends to have difficulties with nuance, as a result, likes to be literal. Hence, an ideal text for MT should have a few complex sentences, sarcasms, double negatives as possible. When stating dates, it is important to put them in a non-numerical format, 01/05/2024 can lead to confusion: is it May 1 or January 5th? To avoid this sort of ambiguity, word format for dates ismore preferable.

The next step occurs after the MT engine produces its translation that is, post-editing. How much post-editing is required varies from project to project. The three main considerations are time, quality and cost.

2.3.2 Types of post-editing

Experts classify post-editing into two types: light post-editing and full post-editing. In the last decades, MT has witnessed significant progress and has become highly prevalent in the translation industry. It is generally perceived as a solution to meet increasing demands and high expectations while reducing translation costs. Nevertheless, the output of most engines is still far from natural. To maximize the effectiveness of MT and to obtain a high-quality translation output two main processes are used.

a). Light post-editing.

Light post-editing implies minimal intervention by the post-editor with the aim of ensuring thatthe quality is 'good enough' or 'understandable'. The expectations are that the client will use it for inbound purposes only, often when the text is needed urgently or has a short time span.

Light post-editing only involves minimal corrections that are essential to the automatic translation. It covers major grammatical and spelling errors as well as any inaccuracies that could either alter meaning or cause confusion.

Therefore, the text is delivered first and conveys original meaning, but stylistic and terminological aspects are not taken into consideration. Consequently, the result does not sound fluent. It is ideal for texts which do not require major revisions and rewriting based on the target population. Light post-editing increases the clarity, readability and professionalism of the automatic translation without changing the organization, the content or style. The main aspects corrected in light post-editing are: orthography, mistranslation, omissions and additions and terminology.

The project that often require light post-editing include: real-time translation projects (live sub-titles, news reporting, literal translations).

b). Full post-editing

Full post-editing is more in-depth, and it addresses all the basics covered by light post-editing and necessary structural and stylistic amendments. Terminology is consistently and accurately translated; the content is successfully localized to suit the target audience.

Full post-editing involves a greater level of intervention to achieve a degree of quality to be negotiated between client and post-editor; the expectation is that the outcome will be a text that is not only understandable but also presented in some stylistically appropriate way, so it can be used in full. Full post-edited texts are fluent and read as original texts.

Full post-editing is ideal for texts that require strict editorial amendments. It is the most time-consuming and expensive form of post-editing, but it is often the preferred form of post-editing when quality is the priority. The goal with machine translation is to achieve the quality of professional translation combined with the speed of professional translation. While some translation projects prioritize speed more than other, it important to always settle for quality in order to end up with a consumable work at the level of professional translation. Aspects corrected in full post-editing are: grammar, punctuation, style, tone, mistranslation, orthography, terminology and omissions and additions.

Projects that often require full post-editing include technical translations, news publishing, actionable content, and important visual context.

2.4 Post-editing and Revision

Translation, post-editing and revision are three concepts that differ completely. Revision is often mistaken for post-editing, whereas the processes are different. As will be described below, the term 'post-editing' entered the industrial world of translation when MT systems started to produce content in target languages that was deemed to be of good enough quality, to be edited and improved by translators. Hence, it appears as if MT had replaced the translation process, and PE occupies the place of the revision process.

The term 'translation' is used to describe a technological process performed by one person, or by a group of people, each one working on a separate part of the same translation project. The word 'translating' will be used to refer to a specific type of writing task that implies generating and composing a sentence, writing it 'from scratch', as opposed to editing only parts of a translation suggestion.

'Revision' is used to describe a complete process, performed by a person different from the one who created the translation (and thus not 'self-revision'). 'Revising' is used to describe the activities performed while engaged in a revision process (Felix do Carmo, 2021).On the other hand, post-editing deals with MT. Post-editors need to have more strategies than mere transference; they need to know how to avoid replicating the source content in a structure that is inappropriate in the target language.

In translator training, PE has already become a standard practice. Many translation programmes have, in one way or other, incorporated PE into their curricula, since at least 2009 (Guerberof & Moorkens, 2019), and the teaching of PE is now expected for all courses included in the European Master in Translation Network (2017). Researchers have even presented suggestions for PE

to be taught as extensions of translators' skills (Kenny & Duherty, 2014). We may thus say that there is a whole generation of graduate translators to whom PE is expected as part of their jobs.

Considering PE as a form of revision assumes that the MT system produced a full and complete translation. This is the misconception behind the views of PE as an undemanding task in terms of language skills, one that can even be performed by monolinguals without access to the source text (Krings, 2021, Schwartz, 2014). The arguments in favour of PE as a form of revision are strong. For example, several papers show that most of the time spent on PE is spent on pauses rather than on keyboard actions (Koehn, 2009, Ortiz-Martinez et al, 2016). This suggests that PE is like revision, more associated with reading than with writing. However, this study posits that this is not a sufficient reason to classify PE as revision, and that the current context in which PE is performed challenges that view.

The first claim against PE being identified as a type of revision is the argument presented by translators when they are confronted with a translation that needs to be revised then realize that it has actually been produced by a MT system. Translators, quite properly refuse the classification of such assignments as revision on the basis that these jobs imply more translation than revision (they involve more writing than reading or at least the ratio between the two is not consistent with that expected of revision work).

To be a form of revision, the only aim of PE would be to eliminate errors from a finalized translation, the difference being that and MT system rather than a human translator had produced this finalized translation. However, in a professional translation workflow, this fundamental condition is not met by PE, because MT does not produce a finalized translation, MT text is only a 'raw output' or a set of 'suggestions' or 'hypotheses' for the translation of a text. Instead, it is the post-editor or translator who is responsible for the final or perfect translation.

Post-editors must recognize the special status of the suggestions presented by MT systems when accepting a PE job. They need to be aware of their likely error types and unpredictable quality level. In the view of this study, MT processes are what Catford calls 'transference' rather than translation (1965: 43).The output is solely based on source language meaning, without cognizance of how a concept ought to be expressed in the target language. House (2003: 169),for example, comments on how such a strategy is inadequate for translation between German, which requires 'informational explicitness', and English, where inference is based on context.

2.5. The Concept of Creativity

In the midst of this technological golden age, innovation and creativity go hand in hand, in as much as this era calls for the ability to rethink and generate new ideas to sustain and foster global competitiveness and economic growth. Thus, creativity is nowadays widely defined as the production of relevant and effective novelty. It is true the term creativity is generally attached to artistic fields (painting, singing, dancing, sculpting), nevertheless, being creative is relevant in every field as far as it requires thinking and novelty. Creativity is the aspect that makes your work interesting and carrying your identity. According to Sternberg and Lubart (2004:3)"creativity is the ability to produce work that is both novel (i.e., original, unexpected) and appropriate (i.e. useful, adaptive concerning task constraints)."

Creativity is the ability to view things in new ways or from different perspectives. "Creativity is defined as the tendency to generate or recognize ideas, alternatives or possibilities that may be useful in solving problems, communicating with others, and entertaining ourselves and

others" (Franken 2014). Corplay (2011) explains that genuine creativity requires a further element over novelty, the issue at stake should always be taken into consideration for the product to be relevant and effective in the given situation.Thus, creativity can be seen as a prerequisite for innovation or as encompassing a stage or phase of innovation. Innovation requires the deliberate introduction of ideas, products, production and marketing processes for a work group or an organization into which they are introduced.

Creativity equally helps to avoid monotony and boredom. In other words, being creative is simply being human, because the human brain hates monotony and would rather choose interesting and entertaining rather than boring and singular aspects of a work. We can therefore join Corplay (2011) who says in his article "Encyclopedia of creativity" that in relevant discussion the term "creativity'' is used in three ways: it refers to a set of processes (e.g "creative" thinking) a cluster of personal characteristics of people (e.g., "creative' Personality), and to results (e.g., "creative" product). Thus, creativity is treated as both a cause (e.g. creative processes, yield, products; people; creativity causes them to behave in a certain way), and an effect or result (a certain kind of product resulting from person and process. This is usually referred to as the classic 3 "Ps" p 22

2.6 Creativity in Translation

Creativity is an area that has received limited attention in Translation Studies (TS). One reason for this could be that creativity is a complex concept to define and quantify (Rojo 2017, 351–52; Malmkjær 2019, 14), but it is also the case that translators are not usually regarded as creators (Hewson 2016, 11), and translation is perceived as uncreative, thus its derivative copyright status (Venuti 1998, 50). According to Aranda (2007),the apprehension surrounding creativity in translation is in part due to the indeterminacy of the term and in part to the frequent impression that creativity articulates less-than-exact translations.According to Sternberg and Lubart (2004: 3): "Creativity is the ability to produce work that is both novel (i.e. original, unexpected) and appropriate (i.e. useful, adaptive concerning task constraints)."

Following the idea that the ability of being creative is a psycho-cognitive process, this research aims at studying the influence of automatic translation on this psycho-cognitive ability in translators. Numerous professional translators and students are not aware of the importance of creativity in translation and even use this strategy unconsciously while translating. Moreover, in an environment where the prevalence of post-editing surpasses translation, creativity, which was already unconsciously applied, is even more neglected. O'Sullivsn (2013: 44)), emphasizes on the sociocultural context and notes that: as concepts of translation become enlarged (see e.g., functional, pragmatic and sociological approaches) and move away from equivalent-based models, it becomes easier to see translation as inherently creative"

Translation is a complex and dynamic process that requires not only linguistic proficiency but also creativity. Translators often face the challenge of maintaining the balance between fidelity to the source text and the need for creative adaptation in order to produce a high-quality target text. It is therefore important to investigate how post-editing as an emerging process influence this quality in translators. The notion of creativity in translation is therefore particularly essential in this increasingly automated era. A translator being creative creates a gap between human translation (HT) and machine translation (MT) given that translation retraces the creative impulse of the original. Both the writer and the translator are equally constrained by "the handling and crafting of the raw material of language" (Portedheila and Loffredo, 2007:10).

Creativity is a crucial element in translation, because it allows for the refinement and enhancement of the material source during the translation process, while preserving artistic and cultural nuances in the final output. Lucia (2020) studied creativity in translation as a form of innovative translation, which stems from the need to reformulate stylistic, linguistic, and cultural particularities. A translator who is able to create these innovations without deviating from the initial idea of the author, is creative and polyvalent. Creativity in translation is the recognition of language as a dynamic and evolving form of expression. It is an approach that allows for flexibility and adaptability in the translation process, enabling translators to find solutions to cultural and social challenges.

A translator's creativity is an essential element in the translation process. It incorporates "the original's mode of signification' (Benjamin, 1992:79), and reconciles what might seem conflicting notions: fidelity and freedom. In translation the source text is often referred to as the raw material which serves as a primary element for the final product. "A commitment to the more equivalence of this 'raw material' too often, the cornerstone of translation excellence, has the ability of using the most outstanding features of the source text and reducing the translation to an inferior copy (Lucia, 2020). Creativity is often qualified as a competence for skilled translators; however, no single theory or research agenda encompasses all of the complex factors that are likely to influence a translator's choices and abilities.

Though creativity and translation do not seem to be directly related at first sight, the issue of creativity in translation seems to call for curiosity among an increasing number of researchers. Most researchers assess the question of creativity in translation only on the literary point of view, that is, they focus more on literary translation for the reason that literary translation is the only aspect of translation that seems to require creativity. However, as Jaaskelainen (2012: 193) points out, creativity plays a role whenever there is no readymade answer, therefore "creativity is part and parcel of the cognitive problem-solving in other kinds of translation tasks as well. Others like Schumacher (2018) was the first in tackling the issue of post-editing and human translation in the academic context. He directed his study towards the influence of automation on students' translation output without clearly emphasizing the aspect of creativity.

However, it must be included in discussions of translations because as one of the unconscious strategies which re-creates the source text, it takes on many forms and accounts for the individualities and unpredictability between versions. This work offers an opportunity to practitioners and educators to better understand challenges associated with creativity in translation. There is widespread agreement that the benefits of human work are particularly evident in language services that require a special creativity, which applies, for instance, to the transfer of advertising slogans from one linguistic and cultural context to another, or to literary translations.

At the same time, such language services are also gaining grounds overall, as witnessed in numerous articles on transcreation from recent years. A creative shift analysis study by Andara (2018) revealed that the translation in HT provide a more novel translation, less constrained by the MT output and as a result, this might increase narrative engagement. Andara (2018) equally explores the creative constructs utilized by translators in the reformulation of texts tottering between faithfulness, freedom, problems-solving and innovation. Arenas and Toral's (2020) seminal work on the subject aimed at answering three key questions: can creativity be quantified in texts translated by humans as opposed to those produced with aid of a machine? The results revealed that HT scored higher for creativity than MTPE, all things being equal.

Consequently, apart from accuracy and understanding of nuances, creativity is one of the key aspects that differentiates human translation from machine translation. It is even more indispensable in our current era where machine translation output is becoming very more accurate than it used to be some decades ago. Creativity in translation as explained above deals with the capacity of translators to add their personal touch to a translation in such a way that their translations carry their identity. Creativity in translation has to do with psychological processes that enhance a translator's capacity to adapt and customize translations. Human translators can tailor translations in order to meet specific needs. Creativity is indeed an unknown strategy as mostly every translator tries to make their work unique and beautiful in style and language. If not, there will be no need for human translators to either translate or post-edit.

2.6. Teaching Post-editing

According to O'Brien, Teaching post-editing means translators will embrace MT. Vasconcellos and Léon (1985:122) claim that a full-time, trained post-editor, working on-screen, can produce polished, standard quality output at a rate of between two and three times faster than traditional translation (i.e., 4,000 to 10,000 words per day). These figures suggest that MT and post-editing are viable solutions to meet the growing translation demand. Yet, how many translation professionals have received formal training in post-editing techniques?

Translators who do not have post-editing skills are frequently hostile to machine translation technology. Common arguments against MT include a dislike for correcting repetitive errors that a human translator would never make, a fear of losing language proficiency by working with poor MT output and a dislike of having one's freedom of expression limited (Wagner, 1985:213). Plaza (2020) states that there is a need to re-educate all the stakeholders involved in the cycle of translation projects. The fact that MTPE has become the new market of translation worldwide is undeniable, consequently each actor included in the translation process must critically understand the MTPE process and apply it correctly.

Schumacher (2018) was the first in tackling the issue of post-editing and human translation in the academic context. He directed his study towards the influence of automation on students' translation output without clearly emphasizing the aspect of creativity. In the view of this present study, instead of just banning MT in academic work, teachers could use it as an additional teaching resource in class. The present work looks specifically at assessing the usefulness of post-editing training materials based on the hypothesis that MTPE training could help students identify and correct raw MT output and expose them to creative translation craftmanship. In relation to analyzing MT mistakes and using PE in translational language learning, Kiffer (2008: 63) stated that Post-editing of MT "give students insight into the huge challenges which have confronted MT, especially the questions of how to deal with syntactic and lexical ambiguity, non-literal language and inferencing."

Conversely, it has become clear that one of the challenges that PMs face when managing MTPE projects are the new processes and factors that the introduction of MT entails and that differ from those in translation projects, training of the MT engine, new pricing and compensation models, different interpretations of the concept of quality, confidentiality issues, etc.It is hypothesized in this study that with specific MTPE training students will be able to detect and correct MT mistakes in their translations.

Most of these scholarly views go towards the improvement of translation teaching by contextualizing it to our current environment in order to add value to the practice and avoid its quasi

extinction. In this vein, O' Brien (2002)sums up the debate that Post-editing skills should be taught because: it would help meet the increasing demand for translation and for faster production times; post-editing skills are different from translation skills and we cannot assume that a qualified translator will be a successful post-editor; it would produce graduates who are already "comfortable" with postediting and who are more ready to be productive in a machine translation environment upon graduation; and it could improve the uptake of machine translation technology by improving translators' perceptions of MT and its capabilities.

Senez (1998b:293) confirms this effect when she reports that a translator involved with an MT project eventually "no longer feels threatened by the machine, but has learned to reap as much benefit as possible from what the computer gives him".

3. Methodology

The main aim of this study was to assess the significant impact of post-editing on translators' creative decision-making in the translation process. This study therefore sought to compare the output of post-editing and human translation while focusing on creativity. It also takes an in-depth look at this relatively uncharted territory of MTPE which offers a number of insights into stakeholders' sense-making and what these new developments might mean for translation practice and translator training respectively.

The study adopted a qualitative, descriptive, semi-experimental, a metanalytic approach using a cross-sectional case study design that makes use of an ex-post facto/quasi-experiment to assess creative translation craftmanship in MTPE and HT. The data collecting instruments used in this study were questionnaires, and a protocol translation test. The participants were also asked thirteen other questions related toattitudes towards MT and PE translator platforms. Suggestions are made in the light of the survey results for responsive appraisals.

The study's population comprisedof 20 professional translators, and30 students of the MA degree programme in the Advanced School of Translators and Interpreters (ASTI) of the University of Buea in Cameroon. The overall questions driving this study focus on: attitude and awareness of stakeholders towards MT, MTPE, HT, and impact of post-editing on translators' creative decision-making in the translation process. Results for the first question were elicited through the questionnaire instrument, while those for the second were elicited through the protocol translation text. The second question merited an experimental protocol text: can we quantify creativity in texts translated by humans (HT) as opposed to those produced by machines (MT) and post-editing (MTPE)? The conceptual basis for a post-editing-based approach was worked out in an elaborate literature review. However, quantitative techniques of research were used for data analysis, presentation, and interpretation of the findings.

Within the framework on assessing the impact of post-editing on translators' creativity, the methodology applied to explore the answers to these questions are described: to rate the translated texts we used the harmonized DQF-MQM Framework 3, which unifies evaluation practices from academia and industry. Because of the definition of acceptability adopted in this study (which refers to the quality of being error free), the study decided to use the Harmonized Error Typology 4, which classifies errors according to the following high-level error types: Accuracy, Fluency, Terminology, Style, Design, Locale Convention, Verity and Others.

The study bases its framework on Guilford's (1950) nine dimensions of creativity and proposes the following four dimensions: flexibility, which is reflected in the use of translation shifts—

here understood as cognitive operations; novelty, interpreted as the presence of unique solutions; acceptability, reflected in the absence of errors; and fluency, reflected in routine or automatic behaviour. The first three dimensions can be observed and assessed in the translation product, whereas the last one is accessed by examining the translation process.

One of the basic premises is that creative processes are found when translators deviate from a mere reproduction of the source text (ST, hereafter), whereas non-creative processes essentially consist of reproducing the ST unit (Bayer-Hohenwarter, 2009: 46).The overall question driving this research is how does creativity in different translation modalities (MT, MTPE and HT) impact the translation?

4. Results and Analysis

This section presents survey results on students' notion sense-making, and on the impact of post-editing on creativityas well as the major pedagogical implications evoked. Survey instruments: the Students' Notion Instrument, and Translation protocol testwere designed to provide answers to the two (2) research questions of this study.

What is the impact of post-editing on translators' creativity and quality of the final product? More specifically, how does post-editing influence translators' creative decision-making process? What are the factors that contribute to the enhancement of translators' creativity? What are the implications of post-editing on the quality and the artistic value of translated texts?

4.1 Questionnaire

Two questionnaires addressed to students and professionals were designed. The findings are presented below.

4.1.1 How Post-Editing platformsare perceived

The instruments comprised of two tables of some 13-survey items, which elicited respondents' responses to the basic notions of post-editing principles and practices. Descriptive statistics on the findings of the students and professionals' profiles and characteristic variables are presented in the table that follows:

Table 1. Knowledgeof Basic Post-Editing Principles and Practices

S/N	Variable	Details of Question	Description	Frequency	Percentage
1.	Distribution of sample population by age	Age range	20 - 25	25	48.0
			26 - 35	17	32.0
			36 - 45	10	23.0
			Total	50	100
2.	Distribution of sample population by Occupation	Students	ASTI Trainees Year 1 and Year 2	30	60.0
		Professional Translators	Service Corporate Freelance	20	40.0
3.	Post-editing and Creativity in Translation	Do you often use machine translation?	Yes	35	70.0
			No	15	30.0

		What are your motivations?	It is very useful	50	100.0
			It is time saving	35	70.0
			It facilitates bulky tasks	40	80.0
		What are the aspects you usually emphasize when correcting MT output?	Style	39	78.0
			Grammar	23	46.0
			Vocabulary	24	48.0
			Terminology	39	78.0
			Typography	16	32.0
			Others	06	12.0
		What according to you are the most common errors made by machine translation systems?	Terminology	27	54.0
			Style	37	74.0
			Grammar	35	70.0
			Vocabulary	38	76.0
			Semantics	40	80.0
			Others	03	06.0
		Do you believe that creativity is an essential element in translation?	Yes	36	72.0
			No	14	28.0
		Can you spot the difference between creative translation and creativity in translation?	Yes	20	40.0
			No	35	70.0
			Sometimes	19	38.0
4.	Distinguish between creative translation and creativity in translation.	I don't know			60.0
		Creative translation is you translating with no MT device whereas creativity in translation refers to correcting MT output.			30.0
		Creative translation is mostly trans-creation while creativity in translation is the ability of a translator to communicate his style through his translation.			54.0
		I think creative translation entails converting source language into a target language while paying attention to the purpose and not linguistic elements.			40.0
		Honestly l, I think creative translation only applies to domains like video game localization and literature marketing.			30.0
		Creative translation refers to the ability of translating human point of view and not words			44.0
		Creative translation comes from the translator and cannot be produced by machine translation because it has a static mind.			60.0
		Creative translation is the use of creativity in the course of translating with the aim of producing a suitable rendition while mostly maintaining the sense in the version.			62.0
		Creativity in translation is what distinguishes your work, what makes the uniqueness of your translation from other colleagues' work.			86.0

	Creativity in translation is the added value.	58.0
	I am sure but I think creativity in translation might be the ability to adapt your style.	54.0
	Creative translation is readapting, reinterpreting translation, while creativity in translation is the effective use of translation techniques.	50.0
	Creativity comes from the translator and this cannot be provided by machine translation.	52.0

The demographic results of the survey reveal that a total of 30 students and 20 professionals took part in this study. Conversely, there were more senior students and adult professionals (52.0%) than freshmen or young professionals (48.0%), because of their experiential advantage over freshmen. Moreover, all the 30 student participants were drawn from ASTI (60.0%) and selected from both French and English speaking. With regards to the professionals, they were drawn from among the public service, corporate and the Freelance (100.0%).

Some 35 respondents representing 70.0% have had an experience using Machines to Translate,while all the 50 of them (that is, 100.0%) acknowledge the usefulness of MT in today's professional landscape. With regards to aspects that participants would emphasize when correcting MT output, the results demonstrate that a majority of them (39, that is, 78.0 %) would focus on style and terminology respectfully. As a result, only 24respondents (48.0.0%) would focus on Vocabulary, and Grammar (46.0%) respectively. Conversely, a majority of respondents considersemantics (40 - 89.0%), and terminology (39 – 78.0%), as well as vocabulary (38 – 76.0%) to be the most common errors made by machine translation platforms.

Some 36 respondents (that is, 72.0%) consider creativity as essential in the career of translators. However, only 20 of them (40.0%) can spot the difference between creative translation and creativity in translation. Only a percentage of 52.0% on average of respondents can distinguish between creative translation and creativity in translation. The survey on respondents' mastery of the difference, however, shows that 43 respondents (that is, 86.0%) testify that Creativity in translation is what distinguishes your work, what makes the uniqueness of your translation from other colleagues' work although it is difficult to conjecture in what various ways.

The next table elicits respondents' degree of mastery, and of how and whys of post-editing principles and practices in the field.

Table 2. Understanding of Post-editing Principles and Practices

S/N	Question	Response	Percentage
1.	As a translator in a modern environment with rapidly growing A1 translation systems, do you believe translators still have the capacity to freely express their creative minds?	Yes, machines will never replace HT.	57.0
		Yes, creativity is what identifies us	60.0
		Yes, as far as you know the difference between relying on A1 and using A1 for help	38.0
		Of course,	20.0
		Absolutely, especially for clients or translation agencies that still don't resort to A1 to reduce by half their standard rates of translation and pay low ratees to translators for MTPE	50.0

		Yes, the machine translation systems give us raw translations that we still need to adjust at our convenience in terms of equivalence in general.		70.0
		Yes, of course		10.0
2.	What are the machine translation systems you often use?	Deepl	45	90.0
		Reverse	20	40.0
		Google translate	10	20.0
		Memo Q	49	98.0
3.	Would you advice a student translator to rely on these A1 systems? Why?	Not really, however, they are very helpful		50.0
		It shall delay their learning, so it's a no		20.0
		No because it might destroy your creativity		30.0
		No, they need to learn how to apply the various techniques and skills taught in school, master them, before using A1 systems		60.0
		Absolutely no		10.0
		Yes and no, in case they have learned how these systems work, the modern translator should know how to use these tools because A1 requires that knowledge.		75.0
		No, a student shouldn't depend on A1 because it shall reduce his translation skills.		15.0
4.	How far do you think A1 systems are advantageous?	Without realizing it, the translator follows the A1 style		10.0
		Solely relying on A1 tools will kill the translator's originality no matter how good A1 renditions seem to be.		65.0
		Translators' loose creativity.		20.0
		Translators don't already anymore.		10.0
		No really		10.0
		Translators find less to correct as time goes on without even realizing it.		67.0
		It enhances laziness.		45.0
		Translators lose their capacity to grab vocabulary as they do no longer search when blocked.		36.0
		Everyone has limits but A1 systems will always necessitate human amendment.		67.0
		A1 does not kill style.		42.0
		Without you realizing it, the more you rely on A1 systems for your translations, your creativity and efficiency falls drastically.		64.0
		It depends on how you use A1.		37.0
		A1 might affect a translators technical know-how ability in the long run.		23.0
		Professional translators cannot be influenced.		31.0
5.	As a student translator do you think you have the ability of correcting MT output.	Yes		88.9
		No.	1	10.0
6.	In what ways do you think that you have the ability of correcting MT output.	Yes, because we study it in school.		45.0
		Yes, because the errors are too obvious.		60.0
		Yes, because machine translation makes a lot of errors		60.0
		Yes, because I know the difference between appropriate terminology and machine translations, I am not sure.		35.0
		Yes, because I have already worked on MTPE projects.		53.0

		Yes, because I have already acquired some adequate vocabulary.		50.0
		Yes, because machine makes a lot of errors		60.0
		Yes, because I have a considerable level.		30.0
		No, because I believe it is a form of revision and it needs some training.		65.0
		Yes, because I might be a student but I have experience as a professional linguist.		54.0
		Yes, because I have contextual knowledge in several domains.		40.0
		Yes, because human input is very important.		20.0
		Yes, because it is always full of noticeable errors.		60.0
		Yes, because I know it is just a guide and not a good translation.		
		Yes, because MT output lacks some background context.		
		No, because I must be a good translator first.		
		No because I must understand the domain and be able to criticize before post-editing		
7.	Do you think that HT might be replaced by post-editing in the future?	Yes	25	50.0
		No	20	40.0
		Maybe	5	10.0
8.	Why do you think so?	Yes, because modern translators post-edit more than they can translate.		60.0
		No, because certain domains cannot be easily replaced.		65.0
		Yes, because most people post-edit texts before handing it to clients.		70.0
		No, because humans are irreplaceable in this domain.		50.0
		Yes, because it is not even a matter of future. Most of the big translation agencies or LSP have started resorting to A1 in pre-translation most of their projects, and sending them to translators for proofreading or editing. Therefore, it is important to teach MTPE in translation schools today because there is now a big market for that. Very little projects need pure translation,		75.0
		Yes, because it is easy and rapid.		78.0
		Yes, because A1 is constantly improving.		74.0
		Yes, because A1 is what clients are looking for today.		78.0
		Yes, because A1 is becoming more and more performant.		68.0
		No, because HT shall remain.		85.0
		Yes, because we are in the digital era. Using machine translation to aid translators at carrying out loads of work when faced with high demand in short deadlines, it is obvious that translators will have to do more of post-editing to meet expectations.		80.0
		No, because human capacities will always outdo post-editing.		88.0
		Yes, because post-editing is time saving.		60.0
		Human input will always be needed.		85.0
		Yes, because it develops so quickly.		59.0
		No, because machine translation has been existing for years and human translation has not disappeared.		90.0
9.	Do you think that pricing in translation should	Yes, efforts have changed.		40.0
		Pricing has already changed from the perspectives of agencies and from a translator's perspective, it is either		50.0

change because of the implication of machine translation?	he accepts to work on such projects and he is paid low rates or refuses and have no work at all.	
	It is very difficult for him to negotiate rates on such projects. For him to negotiate, he or she has to look for different clients or communicate his new pricing with an agency he is working every year.	60.0
	I believe they should be able to adapt to our era.	55.0
	It should change, for me, they should even be paid better.	60.0
	Not really, humans still need to read and revise the text so it takes the same time to work on a translation that said, pricing should not necessarily change, if yes it should rather increase.	70.0
	No, because the best translators do not even use A1 for their translations.	60.0
	Yes, it can have an influence	57.0
	Maybe	35.0
	Yes	56.0
	No	43.0

The survey results presented on Table 2 show that respondents' opinions vary with regards to their experiences and attitudes towards machine translation, post-editing and artificial intelligence platforms. These figures indicate that the majority of respondents can't still freely express their creative minds in the era of A1 translation (43.5, on average). The more positive ones believe the machine translation systems provide them raw translations that they need to adjust at convenience in terms of equivalence in general. The survey equally shows that most respondents are familiar with machine translation systems (62.0%, on average), amongst which *Memo Q* and *Deepl* rank high (98% and 90%, respectively).

The figures also point out that a majority of the students and professionals consider translation A1 platforms not very welcomed and reliable (37.1% on average). Conversely, 50% of the respondents consider it helpful but equally detrimental to translators by diminishing their skills. Furthermore, most respondents consider Machine translation disadvantageous because it destroys the translator's originality (65%), makes the translator less performant and dependent on machines (64%), and worst still with the machine's increasing errors it can never beat human translation (67%).

This survey also demonstrates that over 50% of the respondents see Machine Translation as a threat to Human Translation, but the students (50%) assert that they can reliably correct all Machine Translation output. With regards to whether post-editing may be replacing human translation in future, the results demonstrate that a majority of them (90%) consider it impossible because machine translation has been existing for years and human translation has not disappeared. Furthermore, some (88%) believe human translation will always outdo post-editing.

Lastly some 70% of respondents believe that because humans will continue to be needed in MTPE, humans should be paid much more for their indispensable job.

The next section presents the results from the translation protocol texts on creativity.

4.2 Translation Protocol Text.

The translation texts elicit data to answer the second research question: What is the impact of post-editing on translators' creativity and quality of the final product? More specifically, how does post-editing influence translators' creative decision-making process? What are the factors that contribute to the enhancement of translators' creativity? What are the implications of post-editing on the quality and the artistic value of translated texts?

Descriptive statistics on the findings of the students and professionals' translations and creativity variables are presented in the tables that follows. Each translation was analyzed to evaluate its creativity.

Table 3: Creativity in Post-editing Translation

S/N	Excerpt No. 1 Introduction Générale		
1.	Source Text	<u>Introduction Générale</u>. Le concept relatif à la RSO connait aujourd'hui plusieurs significations sur le plan strictement scientifique. C'est notamment le cas de la responsabilité sociétale des organisations.	
2.	Machine Translation	General Introduction. The concept of SAR today **has several meanings from a strictly scientific point of view.** This is particularly the case for corporate social responsibility.	
3.	Post-edited Translation	General Introduction. The concept of CSR today **has several meanings from a strictly scientific point of view**	
4.	Human Translation	*Nowadays, CSR related concepts are assimilated to several perceptions in purely scientific terms. Corporate Social Responsibility can be categorized as such.*	
5.	Context of production	**Excerpts** - Youmbi Ngameni's *Mise en œuvre des responsabilités sociétales dans les organisations au Cameroun.*	
6.	Element of Interest	*Nowadays, CSR related concepts are assimilated to several perceptions in purely scientific terms. Corporate Social Responsibility can be categorized as such.*	
7.	Author's intention	<u>Concretization.</u> To make the message more concise and easier to follow in English. Hence, the TT evokes a more explicit, more detailed and more precise idea or image than the ST	
8.	Description of elements of creativity	<u>Abstraction</u> refers to instances when the translator uses more vague, general or abstract TT solutions as compared with the ST. A more generic element is used	
		<u>Concretization</u> refers to instances when the TT evokes a more explicit, more detailed and more precise idea or image than the ST. A more concret element is used.	✓
		<u>Modification</u> refers to instances whenthe translatoruses the same level of abstraction (e.g., express a ST metaphor with a different TT metaphor without the image becoming more abstract or concrete).	
9.	The translator's method	Intercultural communication theory	Communicative approach
		Translation theory	Interpretive theory

		Translation strategy	Macro-strategy	Domestication
			Micro-strategy	Explicitation-expansion Interpretive - re-expression.
10.	Value judgement of translator's method	The human translation is more memorable, innovative, and impactful. It allows us to broaden our perspectives. It makesthe style to stand out. It also engages the reader and helps to create an immersive experience through details. The Translator manipulates the essence of linguistic nuances to capture the essence of the source text.		
11.	Impact of the human translator's style	It emphasizes the aspects of creativity, freedom in decision-making,the ease of communication, and the value of human translation.		

The skilled human translator injects a healthy dose of creativity into the translation task. The act of translating and the creative process become virtually inseparable. The translator is not simply transferring meaning between words, texts, or economic culture, he embodies a relation to the two languages and cultures he is translating, just like multilinguals do in code-switching. Thus:

The concept of SAR today - *Nowadays, CSR related concepts*

has several meanings - *are assimilated to several perceptions*

from a strictly scientific point of view - *in purely scientific terms.*

Then the last part which was omitted in the PE but present in the MT - *Corporate Social Responsibility can be categorized as such.*

This is the case of expansion and it is a domestication strategy. The translation process cannot be defined without considering the socio-cognitive complexity and contexts of translation (Simeoni, 1998). Translation is bound to translator's identity, agency, performativity and cultural positioning.

Table 4: Creativity in Post-editing Translation

S/N	Excerpt No. 2	Chapitre 1: La Responsabilité sociétale des organisations RSO
1.	Source Text	Chapitre 1: La Responsabilité sociétale des organisations RSO.Origine : Bien que la responsabilité sociétale des organisations (RSO) soit un concept relativement récent dans le vocabulaire des entreprises et de la société de façon plus générale, il existait déjà dès les années 1950 et était plus connu sous le terme de Responsabilité Sociale des Entreprises (RSE). Aujourd'hui le terme le plus employé est la responsabilité sociétale des organisations (RSO).
2.	Machine Translation	Chapter 1: The Social Responsibility of Organizations (RSO), Origin: Although Social Responsibility (CSR) is a relatively new concept in the vocabulary of companies and society more generally, it already existed as early as the 1950s and was better known as Corporate Social Responsibility (CSR), today the most widely used term is Corporate Social Responsibility (CSR)
3.	Post-edited Translation	Chapter 1: Corporate Social Responsibility (CSR). **Origin:** **Although Social Responsibility (CRS) is a relatively new concept in**

		the vocabulary of companies and society more generally, it already existed as early as the 1950s and was better known as **Company Social Responsibility (CRS)**. Today the most widely used term is **Corporate Social Responsibility (CSR)**.		
4.	Human Translation	Chapter 1: Corporate Social Responsibility (CSR). **Background:** Despite *Corporate Social Responsibility* **(CSR) being a recent concept in companies and the society's vocabulary in general, it already existed in the 50s and was known as company social responsibility (CSR), Today, it is commonly known as Corporate Social Responsibility.**		
5.	Context of production	**Excerpts** - Youmbi Ngameni's *Mise en œuvre des responsabilités sociétales dans les organisations au Cameroun.*		
6.	Element of Interest	**Despite *Corporate Social Responsibility* (CSR) being a recent concept in companies and the society's vocabulary in general, it already existed in the 50s and was known as company social responsibility (CSR), Today, it is commonly known as Corporate Social Responsibility.**		
7.	Author's intention	To ease understanding in English		
8.	Description of elements of creativity	<u>Abstraction</u> refers to instances when the translator uses more vague, general or abstract TT solutions as compared with the ST. A more generic element is used.		
		<u>Concretization</u> refers to instances when the TT evokes a more explicit, more detailed and more precise idea or image than the ST. A more concret element is used.		
		<u>Modification</u> refers to instances whenthe translatoruses the same level of abstraction (e.g., express a ST metaphor with a different TT metaphor without the image becoming more abstract or concrete).	✓	
9.	The translator's method	Intercultural communication theory		Interpretive
		Translation theory		Linguistic approach
		Translation strategy	Macro-strategy	Omission
			Micro-strategy	Interpretive
10.	Value judgement of translator's method	The translator's creativity at an individual level involves problem solving and on a societal level it leads to innovation. Creativity in this text realizes the shifts which stem from the need to reformulate linguistic, stylistic and cultural particularities.		
11.	Impact of the translation's style	The act of translating and the creative process are virtually inseparable. Often, a translator will be torn between representing form versus content. Creativity is the thing that can find a harmonious balance between the two. As well as ensuring accuracy and quality, it's also essential to give consideration to style and tone of voice in translations.		

Creativity is an inevitable aspect of the translation process. According to Sternberg and Lubart (2004: 3): "Creativity is the ability to produce work that is both novel (i.e., original, unexpected), and appropriate (i.e. useful, adaptive concerning task constraints)."Bayer-Hohenwarter's (2011) suggests that successful translation performance is defined by "reflected decisions on the use

of reproductions versus creative shifts depending on the specific demands of a particular translation unit" (p. 686)

The text uses the modification elements of creativity. Modification refers to instances when the translator uses the same level of abstraction.

(Corporate Social Responsibility (CSR). Origin: **-Corporate Social Responsibility (CSR). Background)**

Although Social Responsibility (CRS) is**-Despite***Corporate Social Responsibility* **(CSR) being**

new concept in the vocabulary of companies and society–**a recentconcept in companies and the society's vocabulary in general**

Today the most widely used term is **- Today, it is commonly known as**

The examples above demonstrate that an"increased attention paid to pragmatics, discourse, and sociolinguistic factors seem to have reinforced the emphasis on creativity" (Heltai, 2004: 58). Hence, translators can in fact be constrained by "the handling and crafting of the raw material of language" (Perteghella and Loffredo, 2007: 10).

Table 5: Creativity in Post-editing Translation

S/N	Excerpt No. 3	Différences culturelles dans la perception de la RSO.
1.	Source Text	Différences culturelles dans la perception de la RSO. L'adoption d'une définition standardisée et généralement acceptée par une forte majorité a notamment été ralentie par les différents biais culturels (Capron, 2009), conceptions de la responsabilité sociétale diffèrent selon les cultures, particulièrement entre les Nord-Américains et les Européens. Ainsi, Capron (2009) identifie trois grandes conceptions de la RSO).
2.	Machine Translation	Cultural differences in the perception of SAR. The adoption of a standardized definition generally accepted by a large majority has been slowed down by different cultural biases (Capron, 2009). Indeed, the different conceptions of social responsibility differ according to cultures, particularly between North Americans. Thus Capron (200) identifies three main conceptions of CSR.
3.	Post-edited Translation	Cultural differences in **the perception of SAR**. **The adoption of a standardized definitiongenerally accepted by a large majority has** been **slowed down by different cultural biases** (Capron, 2009). **Indeed, the different conceptions** of social responsibility differ according to cultures, particularly between North American and Europeans. **Thus Capron (2009) identifies three main conceptions of CSR.**
4.	Human Translation	Cultural differences in CSR perception. **The practice of adopting**a standardized definition **generally accepted by a great majority** was **shot down by different cultural perspectives**(Capron, 2009). **Indeed, cultural differencesaffect different perspectives towards** Social Responsibility, most especially between North Americans and Europeans. **Thus, Capron (2009) classified RSO under three main conceptions.**

5.	Context of production	**Excerpts** - Youmbi Ngameni's *Mise en œuvre des responsabilités sociétales dans les organisations au Cameroun.*		
6.	Element of Interest	Cultural differences in CSR perception. **The practice of adopting** a standardized definition **generally accepted by a great majority** was **shot down by different cultural perspectives** (Capron, 2009). **Indeed, cultural differencesaffect different perspectives towards** Social Responsibility, most especially between North Americans and Europeans. **Thus, Capron (2009) classified RSO under three main conceptions.**		
7.	Author's intention	To ease understanding in English		
8.	Description of elements of creativity	Abstraction refers to instances when the translator uses more vague, general or abstract TT solutions as compared with the ST. A more generic element is used.		
		Concretisation refers to instances when the TT evokes a more explicit, more detailed and more precise idea or image than the ST. A more concrete element is used.	✓	
		Modification refers to instances whenthe translatoruses the same level of abstraction (e.g., express a ST metaphor with a different TT metaphor without the image becoming more abstract or concrete).		
9.	The translator's method	Intercultural communication theory		Interpretive
		Translation theory		Linguistic approach
		Translation strategy	Macro-strategy	Omission
			Micro-strategy	Interpretiv
10.	Value judgement of translator's method	Translators don't usually involve translating the text literally word by word. Everything from your intent and target audience to cultural context and your brand's personality affects the translation process. It's also essential to give consideration to style and tone of voice in translations		
11.	Impact of the translation style	The human translator uses his style as a tool to stand out and be noticed as a professional. Hischoice of diction, sentence structure, rhetorical patterns are considered as separate from their intrinsic content, meaning, and characteristic manner of expression in words. As Delisle (1988: 37)states, "the most distinctive trait of human translation is its creativity"		

In this excerpt, the human translator's creativity stems "from the translator's desire to go beyond the fairly standard form adopted during the MTPE preliminary draft of the target text" (Hewson 2016, 13).As Ballard (1977) rightly intimates, this translator identifies "addition" and "omission" as the most important shifts. Translator's ability to produce creative shifts is an aspect of translation competence and is therefore a skill (Bayerttohenwater, 2011: 668).

The adoption of a standardized definition - **The practice of adopting**

generally accepted by a large majority has - **generally accepted by a great majority** was

slowed down by different cultural biases - **shot down by different cultural perspectives**

Indeed, the different conceptions of - **Indeed, cultural differencesaffect different perspectives towards**

Thus Capron (2009) <u>identifies</u> three main conceptions of CSR.- **Thus, Capron (2009) classified RSO under** three main conceptions.

Translators are often working at the interface of various forms of creative experiences (Pattison, 2006: 91). According to Tymoczko (2003 b: 31), discourse shifts on both personal and social levels "open" up new possibilities of being and unlocks creativity on all levels.

Should machine translation really be considered as 'degree zero' of creativity in translation? Can creativity be quantified in texts translated by humans as opposed to those produced with the aid of machine. HT scored higher for creativity than MTPE.

The section which follows, analyzes the result on creativity acceptability and creativity score across the three modalities: MT, MTPE and HT.

Table 5. Acceptability according to translation modality and analysis criteria

Analysis Criteria	Errors in MT	Errors MTPE	Errors in HT
Accuracy	30	06	02
Fluency	35	17	01
Terminology	00	04	03
Style	50	13	06
Total	115	40	12

The most obvious (but also expected) result is that the MT contains more errors than the other two modalities put together. In fact, the MT contains 9.58 times more errors than HT and 2.87 times more than MTPE. MTPE scores best for accuracy, i.e., presents fewest accuracy errors. However, when it comes to fluency, HT has the lowest number of errors; it seems that accuracy might be 'sacrificed' slightly in HT to obtain a more fluent translation, possibly because the translators are dealing with more expressive elements of the TT.

Table 6. Reproduction and Creativity Shifts

TM	Reproduction		Creative Shifts						Total CS		Invalid	
			Abstraction		Modification		Concretization					
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
HT	13	27.1	12	25	5	10.4	17	35.4	34	70.8	1	2.1
MTPE	19	39.6	13	27.1	7	14.6	9	29	29	60.4	0	0.0
MT	38	79.2	06	12.5	1	2.1	2	9	9	20.8	1	2.1

Creative shifts (CS): All translations that deviate from the ST are considered CS as follows:

The results show that MT has the fewest CSs (HT has 3.78 times more CSs than MT; and MTPE has 3.22 times more CSs than MT), while HT has the highest number of CSs (2.17 times more than MTPE). If the type of shifts is observed, HT is clearly above MTPE when it comes to Concretization, where translators made the TT more detailed, explicit or concrete than the ST. This may be a manifestation of the widely-discussed explicitation strategy in translation (Vinay and Darbelnet 1958); it is also in line with recent research in MT post-editing that finds that post-edited

units are simpler and more normalized and have a higher degree of interference from the ST than HT (Toral 2019; Vanmassenhove, Shterionov, and Way 2019).

HT shows a higher creativity score than MTPE, a finding that is at odds with previous research that found no difference in creativity between translation modalities (Vieira et al. 2020); the divergent findings here may be related to the different methodologies used. This score seems to confirm the view that MT is less creative than a translation done or post-edited by translators, since it has not only more errors but also fewer creative shifts. HT also scores highest for creativity, coinciding with the view from the translators that they are more creative when working on their own than when post-editing.

There are many degrees of creativity and too little or too much can lead to undesirable outcomes. Too little creativity can result in a bland translation that is possibly inaccurate int tone, whereas too much creativity risks losing the original intent of the text and replacing it with the translator's own intent. An ideal translation would use the 'Goldilocks Effects' not too much creativity and not too little but just the right amount.

5. Discussion of Findings

This section discusses the findings by relating them with other researches done on related topics across the globe, and how these findings are in line with other studies, or are against the findings of other studies.

5.1 The impact of translation technologies on the process and product of translation

Rapid technological developments place new demands on people adopting them, as they need to constantly update their skills to operate new technology. According to Runco (2004:658) all these changes and the increased complexity of the world make creativity to be "more important now than ever before […] because creativity is a useful and effective response to evolutionary changes.

Technology now plays a key role in modern language translation as it improves accuracy, speeds up the translation process, and allows for real-time communication in different languages. One of the most significant advantages of Machine Translation (MT) is its ability to save time and resources. Conversely, traditional human translation is a very labour-intensive task that can be time-consuming, whereas Machine Translation can instantly translate vast amounts of text with minimal human intervention.

With the rise in machine translation quality, human translation often refers to a post-editing workflow, rather than to pure human translation from the scratch. Machine translation post-editing (MTPE) is a process in which human translators review and improve the output generated by machine translation systems. The goal of MTPE is to enhance the overall quality and fluency of the translated content, ensuring that it meets the desired level of accuracy and naturalness. Post-editing (or postediting) is the process whereby humans amend machine-generated translation to achieve an acceptable final product.

MTPE reduces costs by using machine translations as a first step, decreasing the time and effort needed for human post-editing. Time saving speeds up the translation process offering faster turnaround times compared to traditional translation methods, Machine Translation provides the raw translation, while MTPE refines that output to improve its quality and readability. MT is therefore a

powerful tool for quickly translating large volumes of text and understanding the gist of a foreign language document.

A good post-editing effort can drastically improve the quality of the target text. Post-editing ensures accurate translations, and it also helps streamline machine translation projects. For example, it can helpthe translator to learn about common errors and how to reduce them in future projects. If there are tight deadlines, light post-editing may be the better option. This is where editing comes in. It helps to ensure that the translated text is accurate and faithful to the sense, connotation and implication of the original text. One of the main ways in which editing helps to ensure accuracy is by checking for errors in grammar, syntax, and vocabulary.

Machine translation systems have created a new role for translators: the post-editor. With the birth of neural machine translation systems, the demand for post-editing has been increasing in the recent years, and it has now become a common service given by language service providers and professional translators.

Why should translator training programmes teach post-editing skills? Is post-editing the same as translation and traditional revision? The skillsets required of a post-editor are listed and the usual list of skills is extended.This increasing demand has led to an increase in the use of translation aids, including terminology management tools, translation memory (TM) and machine translation (MT) technology

5.1.1 Five vital benefits of editing

- Get your thinking straight. Good writing means presenting your material in a logical order and sticking to your themes
- Hit the right tone. How you say something is just as important as what you say
- Eradicate the dead wood
- Eliminate embarrassing errors
- Lubricate your sentences

As a result,translators are increasingly expected to work as post-editors in the MTPE process, but the resistance or reluctance of translators to this expectation is evident as they feel their professional skills and identities are sidelined by technology (Kelly 2014, Cadwell, O'Brien & Texeira 2017).

5.1.2 Eligible Practitioners of post-editing

Post-editing might be considered a minor task that every translator is able to undertake. However, being able to make relevant corrections or amendments to a text previously translated must not be taken lightly. One must be skillful enough to detect semantic, stylistic, contextual and even phonetic errors. As far as it is agreed that the raw MT product is not consumable, it is important to carefully tackle the issue of its revision. German translators' teachers Nitzeke and Silvia Hansen-Schirra, authors of *post-editing guide* (2021) mentioned four skills needed to meet all requirements as a post-editing professional.

a). Translators

Ideally, professional translators can do post-editing. It is essential for post-editors to be skilled professional translators. The post-editing process requires perfect knowledge of the source language and the target language in order to easily establish cultural and linguistic relationships between them. However, a good translator is not necessarily a good post-editor.

b). IT Literates

Post-editing is 80% related to ITs, therefore, it is impossible for a person who aspires to be a post-editor to have difficulties with ICT tools. One needs to be familiar with new technologies and use machine translations tools with ease and tact. A competent post-editor must be able to handle different MT programs as well as the latest technologies.

5.1.3 Necessary Skills for Post-editing

a). Prevention and correction strategies

Competent post-editors must be able to systematically and comprehensively spot and correct the slightest mistakes. It is also essential to have a good strategy for predicting risk and solving problems. They must be fully aware of the limitations of CAT tools and the mistakes that are not always obvious.

b). Soft skills

A good post-editor must have concentration, stamina, work ethics, planning skills, and profound knowledge of culture behind the languages being used.

c). ICT skills

It is important for a good post-editor to master ICT tools, including CAT tools, as well as text processing software in order to be familiar with computer generated files and corrections.

d). General Knowledge

For better results in post-editing. It is of primary importance to have profound general knowledge in the working languages and domains

5.1.4 post-editing tools.

Both editors, clients and project managers should be aware of the various tools that can be useful. All CAT tools offer support for post-editing.

a). Terminology Management systems

They help post-editors ensure consistency. This includes translation memories, term bases, and any useful reference documents. These should be updated frequently to ensure consistency for future projects

b). Machine translation quality estimation (MTQE). This A1 powered feature can provide quality scores for all MT outputs, giving editors and indication of how much work is required for each specific segments. This can be very useful for linguists and project managers identifying segments that they should prioritize for editing.

C). Quality assessment tools either integrated or standalone

These will help identity any issue in the original output that were overlooked or new errors that were introduced during post-editing.

According to Johnson and Whitelock (1987), post-editing is a highly skilled task where the post-editor ought to be an expert in the subject area, the target language, the text-type and contrastive knowledge. Wagner (ibid) reports that translators who are forced to post-edit will not be as efficient as those who have volunteered. She also suggests that "a certain amount of confidence in one's own translation ability and technical expertise is essential for this type of work" (ibid:204).

5.2 Post-editing andcreativity in translation

Does post-editing affect creativity?

The findings of this study seem to confirm the view that MT is less creative than a translation done or post-edited by translators, since it has not only more errors but also fewer creative shifts. Human Translation scores highest for creativity, coinciding with the view from translators that they are more creative when working on their own than when post-editing.

The 'Post Editor' edits the content and modifies the already translated text which may have some errors such as the wrong punctuation marks, inappropriate annotations, incorrect meanings or numerals; all errors are thoroughly checked and appropriate changes are done by the post editor. However, this paper proves that the effort put in by the post editors can be reduced if controlled language is used as the quality of MT will improve and so the overall productivity of post editing will be better. MT's quality has improved over the decades but the quality available currently needs to be improved further in order to publish the outputs. The Post Editor must have the same level of creativity competency a translator has.

Creativity – often defined as the production of novel and useful ideas in any domain (Amabile, 1996) – is key in order to solve the challenges posed by the highly complex and fast changing world we live in nowadays.the status of translation has long suffered from being considered derivative, by contrast with 'original' literary writing, which is considered to be creative.

It is important to reiterate at this point that creativity in this study encompasses acceptability and novelty. There is agreement in creativity studies, in general, and in creativity in translation, in particular, that creativity is characterized by two concepts: novelty (originality) and value (usefulness, appropriateness and effectiveness (Runco and Jaeger 2012; Dunne 2017).A successful translator requires mastery of the target language and very good knowledge of the source language. In addition, translation requires an excellent understanding of the culture associated with both languages. Therefore, when translating, the translator keeps in mind that it isn't just about the words. A professional translator needs to both translate the word and also interpret the cultural context as well. However, it is still heavily discussed whether post-editing and translation skills overlap, and post-editing courses are now included into the curriculum by several translation departments.

Creativity is also a highly valued competence for translators, since translation is widely conceived as a problem-solving activity that requires creative professionals. In translation studies, creativity was first analyzed by focusing on the product, most specifically on three factors relating to the creative rendering of target texts (TT, hereafter): the presence of textual markers of creativity, and the novelty and adequacy of translations (Rojo López, 2017). Sawyer, (2006:4) posits that "if we hope to solve all of the pressing problems facing our society and our world, we must take advantage of the creative talents of everyone."

According to (Venuti: 1995), invisibility of a translator results in the transparency of the translated text in which a text seems as if original. It includes also the fluency of the translation which

also adds to its original appearance. Venuti added that in a transparent translation, the more invisible the translator and the more fluent is the translation, the more visible the original author who wrote the foreign text. Venuti added that a fluent text is capable to give the reader unobstructed access to great thought and to what is present in the original. Therefore, a translator should do his best to achieve such fluency in translation. In other words, to be invisible that his translated text seems natural not translated.

The identity of a translator can be shown by using creative and distinguished language that is expressive to the content in a smooth and direct way that is easy to understand. This view is shared by Kratz (1986:27), a twentieth century translator who however contends that "Certainly, my ego and personality are involved in translating, and yet I have to try to stay faithful to the basic text in such a way that my personality doesn't show."The dependence of innovation, invention, discovery, technological and cultural advancement, and even health on creative potentials is more obvious than ever before (Florida, 2002; Kaufmann & Runco, in press).No wonder, then, that a huge amount of research on creativity and innovation is being generated (Runco, 2003, 2006).

5.3 Recommendations forDeveloping Creative Craftmanship in Translator Training

Does engaging in a process of creative translation improve students' attitudes to the development of translation skills? Does engaging in a process of creative translation improve students' attitudes to the learning of languages more generally?

Creativity is the with which a skilled translator deals with some of the most common problems in translating. Hence, the act of translating and the creative process are virtually inseparable. There is an increasingly wide-spread agreement among Translation scholars that more attention should be paid to nurturing creativity. Creativity – often defined as the production of novel and useful ideas in any domain (Amabile, 1996) – is indispensable element to solve the challenges posed by the highly complex and fast changing world we live in nowadays. Otherscholars argue that "the study of creativity must be seen as a basic necessity" (Hennessey and Amabile, 2010: 570). Innovative solutions to problems require creativity. As pointed out in Csikszentmihalyi (1996:11) "new solutions […] will not appear magically by themselves. Problems are solved only when we devote a great deal of attention to them and in a creative way".

These authors also proposed that creative abilities are trainable and measurable through measures such as fluency, flexibility, elaboration and originality.There is, for example, the idea that each of us has creative potential that can be fulfilled. If creative potentials are fulfilled, or at least maximized, the benefits of creativity are the most likely to be realized (Casanovas, 2011: 17).

This objective for translators can be carried out through translation instruction. Therefore, this paper targets translation instructors to suggest them creative translation methods for teaching translation.The flexibility of creative persons is what gives them the capacity to cope with the advances, opportunities, technologies, and changes that are a part of our current day-to-day lives."(Casanovas, 2011: 20). There are many reasons to consider the possibility that creativity can be enhanced. Most obvious may be that there are clear benefits in applied settings, such as schools and other organizations that are concerned about innovation. It seems obvious that there is need for creativity on both social and individual levels, and thus a need to invest in techniques and programs that are designed to enhance creative skills. (Runco, 2007:320).

Of these interventions, the authors argue that training "has been a preferred, if not the favored, approach for enhancing creativity" (Scott et al., 2004:361).The rationale is that if creative abilities are

trainable, just as proper training helps enhance any ability, creativity training can help increase creative performance. Creative talents depend on the same two things […] the programs and techniques […] will very likely increase the likelihood that the individual will behave in a creative fashion." Runco (2007:371) further argues that creativity can be enhanced in each individual (micro-level) through the teaching and training of tactics, programs and techniques designed to stimulate creative thinking and enhance creative performance.

Training has long been recognized by creativity researchers as having the potential to enhance creative performance (e.g., Parnes and Brunelle, 1967; Torrance, 1972; Rose and Lin, 1984).At the most general level, the scholars distinguish between creative performance and creative potential. For instance, trainees in Translator Training institutions have the potentials which are not yet manifested in products or creative performances. Therefore, it is recommended that the students should try to quit the zone of literal translation and the continuous search for an equivalent translation of the source text in the target text language. They should elevate with their translation to the level of semantic and communicative translation and try to give a target text that is similar to original texts produced by its native speakers.

Implications for education and for the further study of creativity are outlined. Clarity of teaching methods have such paramount importance because it enhances communication with students that, in turn, leads to more understanding as well as students' creativity and excellence. Hence, every teacher should evaluate himself to locate his teaching actions in accordance to clarity. Out of the preceding theoretical study and suggestions for more creative teaching methods in translation, we can say that clarity in general is the key to creative teaching methods in general and creativity in translation teaching in particular. Therefore, it can be said that clarity for both lecturers and trainees in representing the appropriate methods of translation is essential for more creative translation teaching. A lecturer should be clear in explaining these differences between their methods and relate them to the type of the text as well as using a bountiful number of examples to illustrate

Resources and workshops improve students' vocabulary but could also be more targeted to the explicit learning of unfamiliar grammar, where necessary. Creative craftmanship can move between semantic and communicative strategies of translation, but it should not exceed them to free translation,otherwise anybody, not only translators, could generate several CSs (departing from the source text) while at the same time not reflecting, for example, the meaning of the source text. As Vernon, (1989: 94) rightly puts it "a person's capacity to produce new or original ideas, insights, restructurings, inventions or artistic objects,(should be limited to those) which are accepted by experts as being of scientific, aesthetic, social or technological value."

6. Conclusion

The objective of the study was to investigatethe significant impact of post-editing on translators' creative decision-making in the translation process**.** The study adopted a qualitative, descriptive, an ex-post facto/quasi-experiment to assess creative translation craftmanship in MTPE and HT using a set of data culledfromprofessional translators and students of the Advanced School of Translators and Interpreters (ASTP).

The results demonstrate thatCurrent industry trends seem to suggest that machine translation will form an increasing part of the technology solutions put in place to meet the growing demand for translation. Hence a growing number of translators will have to deal with machine translation output. Hence the cost-effectiveness of the MT system must be measured largely by the effectiveness of the

post-editing process" (Ryan, ibid:131). In the same strand of reasoning, Somers (1997:201) also reports that it is recognized by many that post-editing is a skill that needs to be "honed". Teaching post-editing means translators will embrace MT.

Companies wishing to implement machine translation technology would therefore benefit if translation graduates were already "comfortable" with post-editing. Additionally, post-editing skills would give translators an extra boost when it comes to finding employment opportunities. Vasconcellos and Léon (1985:122) claim that a full-time, trained post-editor, working on-screen, can produce polished, standard quality output at a rate of between two and three times faster than traditional translation (i.e., 4,000 to 10,000 words per day).

The editor, Geoffrey S. Koby, suggests that "the translator must be trained in post-editing" (Krings and Koby, 2001:12). McElhaney and Vasconcellos (ibid:142) believe that there are strong arguments in favour of training translators as post-editors. They argue that a translator is best able to identify linguistic errors, has a fund of knowledge about the cross-language transfer of concepts, and has the technical resources at their disposal to work efficiently.

However, Toral (2019) warns that "the extensive use of PE rather than HT may have serious implications for the target language in the long term, for example that it becomes impoverished (simplification) and overly influenced by the source language (interference). As Kussmaul (2000) states "We are faced here with a specific feature of creativity in translating, which at first sight seems to be a paradox. A high number of errors does compromise the translation usefulness and, hence, errors should be considered in this creativity score. It is certain that readers will always want human expressions and creativity rather than machine clueless translations. A skilled translator injects a healthy dose of creativity into their task.

Let the educators of translators prepare future generations for this by teaching students about machine translation, post-editing and creative craftmanship. This paper has outlined the skillsets required. One environmental factor to be prioritized is the transfer of training climate, defined as the trainee's perception of the degree to which there will be support for using on the job what has been acquired in training.

This means that effective training should be relevant, engaged, active, and learner-centered. Teachers have a responsibility to all their students to ensure that all of them have an equal opportunity to achieve to the best of their ability. Instruction that is responsive addresses the needs of all learners. Translator training institutions should devote more attention to ascertaining just what the expectations of trainee translators are, and put more interest in meeting them, hence encouraging better outcomes.

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