

Current Tendencies in Translation Studies from Machine Translation Perspective: A Case Study on Spanish-Chinese

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Abstract: The landscape of translation studies has been profoundly reshaped by the continued development of machine translation (MT), which is frequently associated with artificial intelligence (AI) contemporarily. While studies with specific topics related to MT keep emerging, it would be interesting and beneficial to have a panoramic view of current investigations in translation studies from a machine translation perspective, with language pairs perhaps not that common, such as Spanish-Chinese. In this paper, with VOSviewer, the authors intend to provide a bibliometric analysis of the published articles available online related to translation studies from the angle of machine translation with the language combination Spanish-Chinese. Moreover, a quantitative and qualitative analysis will be conducted on the same group of papers subject to bibliometric analysis, to have an overall understanding of the research topics, methods applied, texts used, and the findings achieved.

Keywords: Machine translation; AI in translation; Current studies; Spanish-Chinese

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1. Introduction

1.1. Machine translation: AI as the latest paradigm

The landscape of translation studies has been profoundly reshaped by the continued development of Machine Translation (MT), which is frequently associated with artificial intelligence (AI) contemporarily^[1-2]. While studies with specific topics related to MT keep emerging, it would be interesting and beneficial to have a panoramic view of current investigations in translation studies from a machine translation perspective, with language pairs perhaps not that common, such as Spanish-Chinese. In this paper, with VOSviewer, the authors intend to provide a bibliometric analysis of the published articles available online related to translation studies from the angle of machine translation with the language combination Spanish-Chinese. Moreover, a quantitative and qualitative

analysis will be conducted on the same group of papers subject to bibliometric analysis, to have an overall understanding of the research topics, methods applied, texts used, and the findings achieved.

1.2. Methodology and objective

The authors aim to conduct a bibliometric study using VOSviewer to understand the co-authorship among articles that investigate machine translation with the language pair Spanish-Chinese. In addition, authors also intend to do qualitative and quantitative study regarding the publications subject to this study from the following perspective: language used, type, time period, type of MT involved, correlation between the type of MT involved and the time period of the publication, main topic, domain of the text used, methods applied, elements of the conclusion.

1.3. Selection of papers

This study adopts the following steps for the selection of papers subject to this investigation:

Search on databases using the following keywords in 3 different languages. Search was done in databases Google Academic, EBUA, Tradumatica, Dialnet, Taylor and Francis, Scopus, BITRA, Meta, CNKI, in January 2025.

traducción español chino Inteligencia Artificial/ AI translation Spanish Chinese/ 人工智能西汉翻译
traducción automática español chino/ machine translation Spanish Chinese/ 机器翻译西汉

Manual selection after reading through the downloaded publications.

The authors limit the study to publications with focus on translation studies (such as evaluation of translation result, or integration of MT and AI into translation process or class activities of student formation, etc.), and excluding publications focused on pure technical aspects (such as enhancement of MT performance by modification of algorithm, architecture or engineering of MT). At the end, 28 papers are selected for this research ^[3-31].

2. Results of the bibliometric study

2.1. Interpretation of the map created by VOSviewer

By observing the map, authors can obtain the following interpretation:

Most authors work alone: Among the 28 publications subject to the VOSviewer study, 15 authors only work alone and did not work with anyone else on Spanish Chinese MT translation.

Three tightly-knit collaborations with intersections via Banchs and Costa-Jussà.

Top authors by total link strength.

2.2. Qualitative and quantitative study

In the qualitative and quantitative study, the authors sorted out the 28 publications based on the following criteria, and these are the statistics: English 5; Spanish 21; and Chinese 2.

By type of publication: Articles in academic journal: 14; Thesis for bachelor's degree: 4; Thesis for master's degree: 8; Doctoral dissertation: 2.

By publication period: 1990–1999: 0; 2000–2009: 2; 2010–2019: 13; 2020–2025: 14.

By type of MT: NMT and AI: 4; NMT: 13; SMT and NMT: 1; SMT: 6; Rule-based MT and SMT: 3.

By main topic: Evaluation of MT performance and translation errors: 10; Evaluation of MT performance and post-editing: 1; Evaluation of MT performance and user perception of MT: 2; Post edition and design of teaching

activities: 3; Post edition:1; Comparison between MT with direct bilingual corpus and MT using pivot language/ comparison between MT with different pivot languages: 3; Presentation of MT: 2; Presentation of research group/ program: 2; Students' use and perception of MT: 2; Enhancement of MT performance with integration of linguistic resources: 1; State-of-the-art of MT with language pair Spanish Chinese: 1; MT with pivot language and post-editing: 1

By domain (text used): General: 3; Legal: 3; Legal-administrative: 2; Medical: 2; Cultural: 3; Cultural and tourism:1; Colloquial expression on social media: 1; Legal-administrative, tourism, religion: 2; News: 2; Tourism and natural resources: 1; Natural resources: 1; University syllabi: 1; Not specified: 7.

By methods applied: Qualitative (analysis of translation): 17; Qualitative (analysis of translation) and Quantitative (survey): 4; Quantitative (survey): 2; Descriptive (presentation of a MT or investigation group/ project): 5; Descriptive (different translation process with and without MT) and qualitative (analysis of translation): 1.

3. Discussion of results

From the bibliometric study with VOSviewer and the qualitative and quantitative study, the authors discovered the following.

Noticeable lack of stable collaboration groups: Regarding the topic MT with language pair Spanish Chinese, there is a noticeable lack of stable collaboration groups (shown as clusters in the map), and most of the authors (16) only work alone (single nodes without any link).

Apparently, a big part of the interest in this topic is from university students: Among the 28 publications subject to this study, 14 are theses for a degree. It seems like a big part of the interest in this topic is from university students in their process of getting an academic degree.

The type of MT under study in the publications is closely related to the time period of the publication, which means it is closely related to the development of the technology: Among these 28 publications, studies about MT using LLM (eg. ChatGPT) are published only in time period since 2020, when large language model applied in translation became a phenomenon; Studies about NMT are published since 2010 till nowadays while studies about SMT are mostly published in between 2000–2019 and none of the 28 publications with publication period since 2020 is about SMT anymore, which can be logically explained by the replacement of NMT and LLM.

Predominance of evaluation of MT performance and translation errors as the main topic: 10 out of 28 publications subject to this study are about this topic. On the other hand, the academic interest in post-editing and relevant teaching activities, as well as in using English as a pivot language for Spanish Chinese translation, is noticed.

No apparently preferred domain: Among the publications with the domain of text used specified, no significant preference for domain is observed. They present a wide range of domains, covering legal, administrative, cultural, medical text, as well as social media, religion, tourism, news, and general topics.

Qualitative method as the predominant methodology: The publications about evaluation of MT performance (as well as comparison between performance of different MTs) and translation error, and from there further with post-editing proposal, user perception, etc., amount to more than half of the 28 publications subject to this study. The qualitative approach to analyze and compare translation results by MT is the predominant methodology used.

Shortcomings of the MT result are the most recurring element in the conclusions: Apart from this one,

advocations for post-editing, which can be considered as a natural outcome of the conclusion on the non-satisfactory performance of MT, are also noticeable. Another element of the conclusion that stands out for its occurrence is the comparison of different MT performances. The findings about English as a suitable pivot language for Spanish Chinese translation done by MT are also interesting.

4. Suggestions for future studies on MT with language pairs Spanish-Chinese

Based on the results of the bibliometric study, quantitative and qualitative study, as well as the discussion of the results, the authors would like to bring out the following suggestions for the consideration of future studies.

4.1. More diversity on topics

Evaluation of the MT performance with the conclusion that MT has its shortcomings and requires post-editing seems already abundant. It would be interesting for future investigation to approach from other aspects, such as ethical issues in corpora building and the post-editing process, to avoid imposing hegemony and culture.

Another angle could be industry insight. Human post-editing is a topic that has called attention, but it would be more interesting to study this in a bigger scheme, such as the state of the art of how MT is being implemented in translation company industrial practice and how human factors can be introduced in the application of the MT to enhance quality of the outcome at a reasonable cost, not only in post-editing, but also in annotation of training data, etc. Such studies could help translation companies to understand how to maximize the use of MT and AI to reduce cost without compromising the quality too much.

In addition, considering AI and its working mechanism, the design of prompts and their correlation with the AI translation performance in this language pair seems scarce.

4.2. More interdisciplinary studies

Collaboration of experts from different fields on MT with the language pair Spanish-Chinese is very rare, if not none. Improving MT performance would need collaboration between linguists, scholars in translation studies, and engineers on linguistic computation and AI. From the linguist and translation scholars' perspective, technical insight from experts in other fields to have a better understanding of the mechanism of how MT works can help them for more contributions from a translation studies angle in order to improve the outcome of MT.

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Disclosure statement

The authors declare no conflict of interest.

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