



Strategies and problems in geotourism interpretation: A comprehensive literature review of an interdisciplinary chinese to english translation



Qiang (Jason) Li ^{a,*}, Young Ng ^b, Ruixue (Rachel) Wu ^c

^a Department of Linguistics and English Language, Lancaster University, United Kingdom

^b Geological Society of Australia, 8/141 Peats Ferry Rd, Hornsby, NSW 2077, Australia

^c Leiden University Centre for Linguistics (LUCL), Leiden University, Netherlands

ARTICLE INFO

Article history:

Received 11 September 2021

Received in revised form 13 February 2022

Accepted 17 February 2022

Available online 25 February 2022

Keywords:

Geotourism

UNESCO Chinese geoparks

Corpus-based translation studies

Eco-translatology

ABSTRACT

The steady growth of geotourism is increasing the demand for geotourism translation. Because in China geotourism is implemented mainly on the basis of geoparks and this study is Chinese to English (C-E) language based, this review uses Chinese UNESCO Global geopark data to explore the current status of geotourism translation. This comprehensive literature review has five aspects: (1) tourism translation; (2) the conceptual debate about translation strategies, methods, techniques, and procedures; (3) recent advances in corpus-based translation studies (CTS or CBTS); (4) the application of a theoretical framework, Hu's Eco-translatology, in the translation studies; and (5) evidence of the current status of geotourism translation. As a result of this review, two research gaps were identified: (1) the absence of systematic geotourism translation publications; and (2) the absence of systematic translation and interpretation model for geopark data. Therefore, to fill these gaps, a project is proposed: *Effective Chinese to English Geotourism Translation and Interpretation: An Interdisciplinary Corpus-based Case Study in Geoparks*. Furthermore, completion of this project will provide an analytical and theoretical framework, necessary to guide further research and pragmatic application of C-E geotourism translations or even English to Chinese (E-C) geotourism translations.

© 2022 Beijing Normal University. Publishing services by Elsevier B.V. on behalf of KeAi Communications Co. Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Contents

1.	Introduction	28
2.	Data sources and methods	29
3.	Results	30
3.1.	Main features of various related literature	30
3.2.	Research on tourism translation	32
3.3.	Debate about translation strategies, methods, techniques, and procedures	33
3.4.	Advances in CTS	34
3.4.1.	Application of corpus methods to the study of translation	36
3.5.	Application of theoretical framework, Hu's eco-translatology, in translation studies	37
3.6.	Research on current geotourism translation	40
4.	Discussion	41

* Corresponding author.

E-mail addresses: qiang.li@lancaster.ac.uk (Q.(J.) Li), 2901792603@qq.com (Y. Ng), r.x.wu@hum.leidenuniv.nl (R.(R.) Wu).

5. Conclusions	42
Author contributions	43
Funding	43
Acknowledgments	43
Declaration of Competing Interest	43
References	43

1. Introduction

In essence, geotourism is a specialised field of tourism, aligned to meet the objectives of environmental conservation which targets the key goal of public education for preserving geoheritage. However, the following definition by Newsome and Dowling (2018) helpfully distinguishes geotourism from geoheritage:

‘Geoheritage refers to the elements of the Earth that humans value, whereas geotourism is a [wider] type of tourism that is based on some aspects of the Earth’s geological and/or geomorphological heritage.’

As a new concept and global phenomenon within tourism, geotourism has quickly attracted the attention of geologists and geotourists around the world (Dowling, 2013). Chinese geologists have published some works such as *The Principles of Geotourism* (2015) and *Dictionary of Geotourism* (2019) by Chen et al., 2015 and *Timeless Oceania* (2021) by Ng and Li. Geotourism, has been defined from two different standpoints: (1) geological or geomorphological (Hose, 1995 and Hose, 1996; Joyce, 2006; Newsome & Dowling, 2010, 2) geographical (National Geographic, 2003). For the purposes of this research, the Geological Society of Australia (Geological Society of Australia, 2015) definition is used which succinctly describes it:

‘As holistic nature-based tourism focusing on an area’s geology and landscape as the basis for providing visitor engagement, learning and enjoyment.’

Previous literature is focused on systemising geotourism rather than addressing the failures and inconsistencies in translation that have already been found in C-E geotourism. Both Chinese scholars and foreign scholars have conducted systematic research on geotourism based on Dowling’s (2013) ABC (Abiotic, Biotic and Cultural elements) approach. For example, Chen (2013, 2015 and 2020), Ng (2015, 2020 and 2021), Dowling (2013, 2015 and 2018), Newsome (Newsome & Dowling, 2018; Newsome & Johnson, 2013), Hose (2020) and Coghlan (2021) focus on geology, geomorphology and ecotourism. However, none of these scholars have published any literature on C-E geotourism translation based on ABC. Meanwhile Li, Wu, & Ng, 2022 argue the rapid growth of geotourism itself demands attention to the quality of geotourism interpretation. This current neglect is serious for two reasons. First, it is allowing geotourism to fall into disrepute for reliability in communicating data and second, it is hindering the growth of geotourism research itself. Thus, this new research is proposed: *Effective Chinese to English Geotourism Translation and Interpretation: An Interdisciplinary Corpus-based Case Study in Geoparks* to fill the research gap in C-E geotourism translation to meet the needs of geotourism development. This project aims to optimise the quality of (C-E) geotourism interpretation and translation and at the same time boost the growth of geotourism research.

The specific data (corpora) for this project are derived from a selection of C-E translations used in UNESCO geoparks recognised in China. As for method, corpus will be employed to conduct corpus analysis quantitatively and qualitatively. Meanwhile, a theoretical framework is also utilised because of the challenge of cultural difference between the two languages. This framework is the Eco-translatology theory, first proposed by Hu in 2001 and later developed and widely applied in various translation fields. Register Theory,¹ proposed by Halliday (1985) will also be used to simplify technical aspects of geotourism translation. An SSC (semantic, style and cultural equivalence) model of geotourism translation will be built for benchmarking purposes. New translation versions will be optimised using the wholistic principles of Eco-translatology. Finally, a taxonomy of geotourism translation strategies, in ABC categories, will be outlined.

As a result of this pioneer research, it is intended the SSC model could build a standard of criteria to assess the quality of ongoing geotourism translation as well as further research. Above all, this research specifically aims to increase the quality of C-E translation which will effectively realise geotourism’s goals of engagement, learning and enjoyment.

In view of the absence of direct previous literature, this review is intended to support the choice of corpus and Eco-translatology. The literature using these methods includes tourism translation, the development and application of corpus linguistics (corpus-based method) and Hu’s Eco-translatology theory (Hu, 2001). Appendix A, explaining linguistics terms, will be helpful for non-specialists.

¹ Register theory includes three parameters: field, tenor and mode. These three parameters were defined by Halliday (1985). Field means the subject matter or topic being developed in a particular situation. Tenor means the roles and relationships being enacted in a particular situation. Mode refers to the channel of communication being used in a particular situation such as oral, written and visual. Translation principles of any special genre can be concluded based on this theory.

2. Data sources and methods

A comprehensive search of literature and data, as well as assessment and analysis of that literature, will produce systematic results on which to build recommendations for further translation of geotourism and limit potential bias from individualistic sources. In accordance with this method, Petticrew and Roberts (2008) emphasise these advantages as well as point to it as a means of identifying research gaps. Thus, this review aims to integrate current information and help guide future study.

To build a comprehensive picture, this review is divided into three processes: (1) search, (2) evaluation and (3) classification of related literature. Related literature was extensively searched on the wide topic of culturally effective strategies for C-E geotourism translation. Key terms were determined to be: geotourism, geotourism translation, translation strategy, corpus linguistics (CL), CTS, and Eco-translatology (see article title, abstract, keywords and topic headings). The key terms were used in the Web of Science (SSCI, SCI, and A&HCI), Scopus, Google Scholar and China National Knowledge Infrastructure (CNKI) websites.

In regards to the geotourism and tourism search, Hose (1996) builds a foundational definition of geotourism as a new type of science which is embedded in tourism, based on the geological environment. Therefore, noting the connection he makes, it was decided the key phrase, 'tourism translation', should also be considered in the search process. Geoparks and geotrails are subcategories of geotourism and therefore, these two terms are also added. The search was undertaken from February to May, 2021, with a total of 4272 results. The website breakdown was: Web of Science 407, Scopus 106, Google Scholar 71, CNKI 3688. All these papers were used to evaluate the various relevant research areas: current CTS; methodology of CL in translation studies; translation strategy, translation methods, translation procedures and techniques; tourism translation; and Eco-translatology applied in translation studies. Corpus-based research methodology and translation theory of Eco-translatology by Hu (2001) are the main methods to be employed to determine the effective strategies.

As was noted, geotourism translation has no scholarly articles yet written. Therefore, it is particularly important to obtain raw data and information through field research. Original data and information came from four channels (1) GSA; (2) brochures, pamphlets, interpretative panels, signs, display boards, and museum displays particularly at geopark entrances, visitor centers, and museums in six² out of the 41 Chinese geoparks approved by UNESCO; (3) four recently published Chinese English double translation geopark tourist guidebooks (Tao, 2017, Wu, 2018, Liu and Li, 2018, Li, 2020); and (4) geology guidebooks published in Chinese (2007b) and English (2007a) by the Hong Kong Geopark. These data were used to assess current geotourism translation.

After the search process was complete, the 4272 articles were evaluated using five criteria: (1) single-blind peer review (CBPR) or double-blind peer review (DBPR) papers; (2) those without cross repetition; (3) those closely related to research purposes; (4) those meeting the key information of research questions; and (5) Chinese literature from 15 influential Chinese linguistics and translation journals³, and postgraduate theses. Firstly, 2491 papers that were not CBPR or DBPR articles, were directly deleted. Secondly, the 1781 remaining articles were scanned and 933 deleted for cross repetition. Then, the abstracts and conclusions of these 848 papers were skimmed and 541 papers were excluded that were insufficiently aligned to the research purposes. After a more careful reading, the contents of nine articles were eliminated as they did not align with the subject matter of research questions. Finally, 36 books, book chapters, and dictionaries of geotourism were added as working references to the 298 relevant remaining articles, and with the raw data and information from six Chinese geoparks, and four previously published Chinese English double translation geopark tourist guidebooks, the total of 344 working bibliographies were analysed to build the current literature review. The detailed evaluation process is shown in Fig. 1.

In the third process, these selected working bibliographies (journal articles, books, book chapters, dictionaries, and original data and information) were further classified according to author, date, publication, journal name and content via a Word Table to clearly flag the categories. Finally, the evaluated texts were all classified into the five following parts according to the research purpose and literature review structure: (1) Main features of various related literature; (2) Review of tourism translation research; (3) Issues about translation strategies, methods, techniques and procedures; (4) Advances and applications of CTS; (4) Hu's Eco-translatology theory applied in other translation areas; and (5) Summary of current geotourism translation research.

All selected materials were either in English or Chinese. This is because in academic study, English is most prolific although this study data is China based. Moreover, Eco-translatology is a native Chinese translation theory, and its generation, growth, and application in translation studies are mainly in Chinese. To avoid any potential bias, only CBPR or CDPR journal articles in the Chinese and English literature were chosen such as *The Journal of Specialised Translation*, and *Chinese Translators Journal*. Similarly, only established publishers were used such as Springer, and Edinburgh University Press. Esteemed scholars (geoscientists/geologists/geotourism scholars) and their key books and papers were also selected, such as Hose (*Geotourism, or can tourists become casual rock hounds?*, Hose, 1996), Newsome and Dowling (*Geotourism: The tourism of geology and landscape*, Newsome & Dowling, 2010), and Ng (*Dictionary of Geotourism*, 2019); linguists: House (*Using translation and parallel text corpora to investigate the influence of global English on textual norms in other language*, House, 2011) as well as McEnery and Wilson (*Corpus Linguistics*, McEnery and Wilson, 1996); translation scholars: Baker (*In other words: A coursebook on translation*, Baker, 1992) and Newmark

² Leiqiong UNESCO Global Geopark, Taishan UNESCO Global Geopark, Danxiashan UNESCO Global Geopark, Wudalianchi UNESCO Global Geopark, Yandangshan UNESCO Global Geopark, and Mount Kunlun UNESCO Global Geopark

³ The 15 influential Chinese journals on Eco-translatology are: 《中国翻译》 (*Chinese Translators Journal*), 《外国语》 (*Journal of Foreign Languages*), 《上海翻译》 (*Shanghai Journal of Translators*), 《中国科技翻译》 (*Chinese Science & Technology Translators Journal*), 《外语研究》 (*Foreign Languages Research*), 《外语与外语教学》 (*Foreign Languages and Their Teaching*), 《当代外语研究》 (*Contemporary Foreign Languages Studies*), 《外语教学与研究》 (*Foreign Language Teaching and Research*), 《中国外语》 (*Foreign Languages in China*), 《外国语文》 (*Foreign Language and Literature*), 《山东外语教学》 (*Shandong Foreign Language Teaching*), 《外语学刊》 (*Foreign Language Research*), 《外语界》 (*Foreign Language World*), 《外语电化教学》 (*Technology Enhanced Foreign Language Education*), and 《外语教学》 (*Foreign Language Education*)

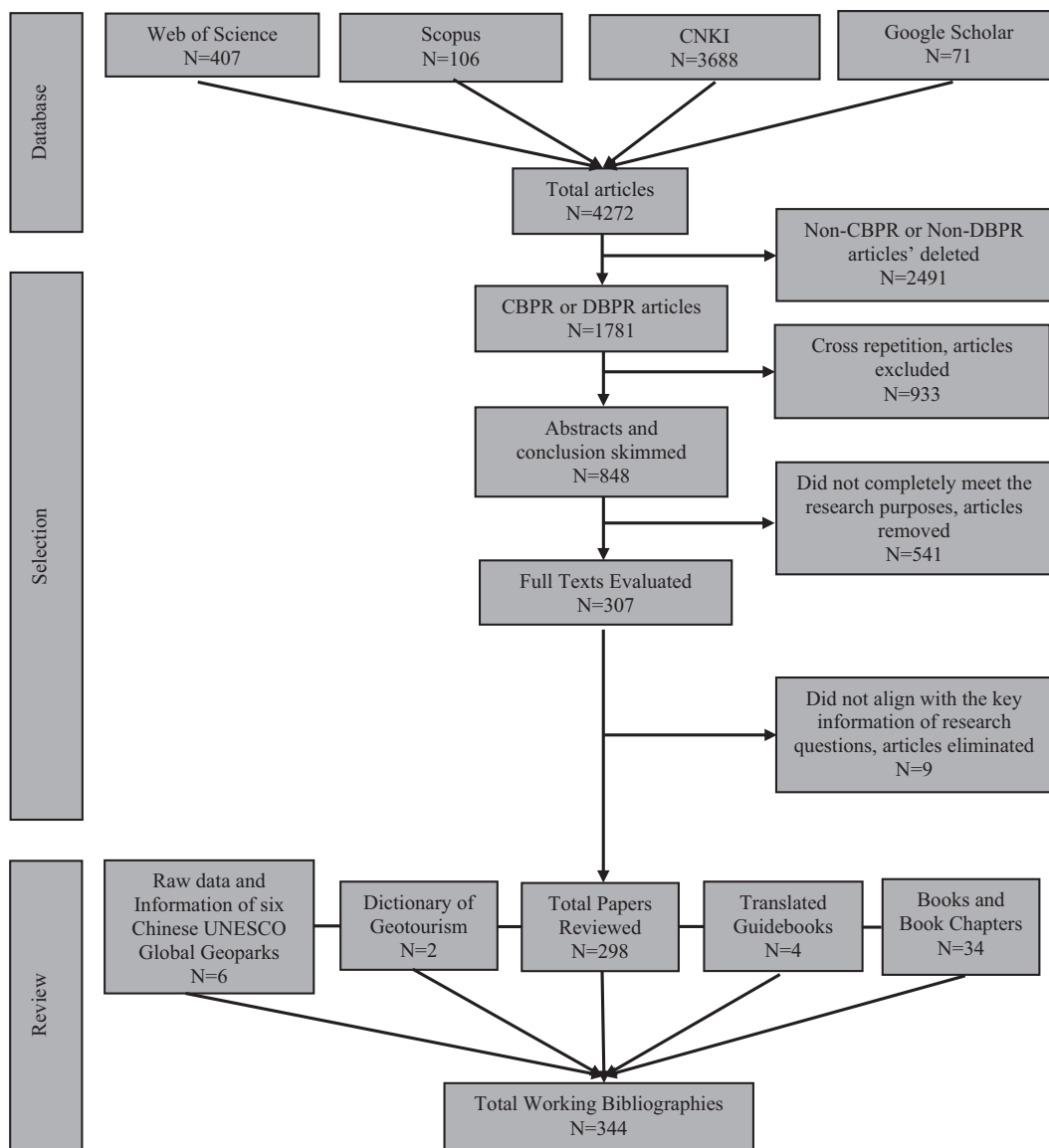


Fig. 1. Flow chart of assessing literature process.

(A Textbook of translation, Newmark, 1988). Finally, only published literature within the last five years was reviewed to keep within current issues of the field.

3. Results

3.1. Main features of various related literature

The bar chart of Fig. 2 illustrates the rate of publication of relevant literature in this review. To illustrate research development, this bar chart pattern can be interpreted in three stages: before 2007, from 2007 to 2015 and from 2016 to 2021 (to beginning of June). In the first period before 2007, many translation theories, and new research like CL, corpus-based methodology and some taxonomies of translation strategies were produced and advanced by eminent translation scholars and linguists. At the same time, the concept of geotourism was proposed and developed by Hose (1995, 1996), Joyce (2006), Newsome & Dowling, 2010 as well as GSA (2015). Geotourism was taking shape and becoming widely accepted by geologists and geoscientists. From 2007 to 2014, corpus-based method was being more widely applied and the paradigm of Eco-translatology was shaped. They were both applied in translation studies. Therefore, at this stage, research literature increased rapidly and maintained a high level. In the final stage,

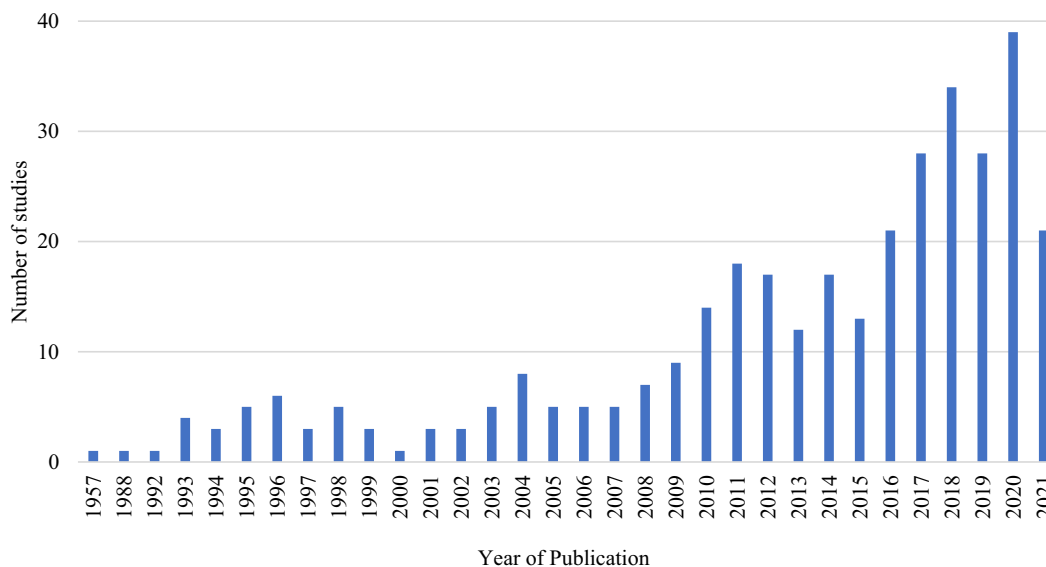


Fig. 2. Total number reviewed of working bibliographies by year of publication (Before 2007 to beginning of June of 2021).

the application of Hu's Eco-translatology, corpus-based research methodology and translation strategy were systematically reviewed in translation studies.

The literature for this review was based on approximately 350 sources that cover a broad variety of disciplines (see Data 1 in Supplementary Material Section). The largest proportion of literature (66.6%) focuses on Linguistics and Translation Studies, followed by smaller categories of geotourism (11.9%), tourism (9.6%) and geoheritage (7.0%). The discipline of geography accounts for the smallest proportion, which was 0.3%. A total of less than 5.0% of the literature focuses on geology (2.0%), original data and information (1.7%), and earth sciences (0.9%).

These works of literature can be classified into a variety of groups according to their core study focus. However, these categories usually overlap and are interrelated since the same publication frequently discusses multiple topics. Table 1 demonstrates the percentage of each of the research topics covered in the reviewed literature. According to the results of analysis, corpus-based methodology leads the way as the foremost research method in the field of translation studies (26.2%), followed by Eco-translatology and translation strategies (25.3%); translation thoughts and translation theories (17.2%), CL (11.3%) and tourism and its translation (7.8%). As regards the object of research, the total of 42 (12.2%) pieces of literature focus on geotourism, these can be broken down into two results: geoparks (6.7%) and new concepts of geotourism (5.5%). Therefore, it can be seen no literature is systematically conducted on geotourism translation. The literature, original data and information in the geotourism field mainly focuses on the concept of geotourism, translations of geopark guidebooks, public signs and panels rather than translation of the data details in geotourism, ABC elements.

Table 2, the type of data collected in the literature, has an important bearing in Table 3, the collection method. Collection of primary data was carried out for 72.9% of literature, while less than a quarter relied on secondary data (23.7%), while very few combined both primary and secondary data for their research (3.4%). Looking more closely at the use of primary data, it mainly comes from case studies (52.3%) (to exam corpus and Eco-translatology applied in translation studies), while only a small proportion used field research (8.7%) (original data and information in UNESCO Global Geoparks), and even fewer (0.8%), interviews (with managers and staff of geoparks and geotourists) and surveys (of local populations, and visitors). The secondary data employed in literature was obtained via biographic research and literature (the generation, growth and formation of translation thoughts and theory), documents and records (original data and information offered by GSA), and analysis of webpages of

Table 1
Research topics covered in the reviewed literature.

Research topic	No.	Percentage
CTS	90	26.2%
Eco-translatology and strategies applied in translation studies	87	25.3%
Translation thoughts, and translation theories	59	17.2%
CL	39	11.3%
Tourism and its translation	27	7.8%
Geoparks	23	6.7%
New concepts of geotourism	19	5.5%
Total	344	100%

Table 2
Type of data collected in the literature.

Data	No.	Percentage	Data Analysis	No.	Percentage
Primary	231	72.9%	Qualitative	27	8.5%
Secondary	75	23.7%	Quantitative	21	6.6%
Both	11	3.4%	Combination	269	84.9%
Total	317	100%	Total:	317	100%

geoparks. Finally, concerning broad research method type, the data in this literature was dominantly a combination of qualitative and quantitative (84.9%) with only 8.5% qualitative and 6.6% purely quantitative.

3.2. Research on tourism translation

Initially, it would be beneficial because of the formative relationship to tourism, to compare tourism research. Newsome & Dowling, 2010, global pioneers in various kinds of tourism research, compare the relationship between geotourism and other types of tourism. They point out ecotourism is related to biotic (plants and animals) which is embedded in geotourism. Therefore, geologists can often mention ecotourism when they research geotourism. These authors further claim, in fact, one in three geologists discuss geotourism. Figure 3 analyses the related fields of tourism and uses solid lines and dotted lines to demonstrate the strength of connection between fields. Thicker lines represent stronger relationships between fields. As can be seen from this diagram, the connection between geotourism and ecotourism is the strongest.

However, some tourism shows many strong contrasts to geotourism. Fundamentally, geotourism is about appreciating geological features and phenomena as well as its associated all the biological and cultural characteristics. This opinion is confirmed by Dowling in 2013 who states geotourism starts from understanding the abiotic environment and building more understanding of the biological environment of plants and animals, as well as the past and present cultural environment of human beings. A second major difference to tourism is travelling to a specific destination, to understand and appreciate, not a sightseeing holiday which could include an unlimited target list. Thirdly, geotourism attempts to develop a sense of identity of an area or region (Briggs, 2020). Therefore, travelling to a destination in geotourism has a higher meaning and is not just for leisure. It is helpful to be aware of these significant differences when looking at tourism translation research and its objectives.

Tourism translation can include translation of public signs, tourism brochures, guidebooks, tourism discourse, menus, tourism websites and tourism promotional materials (TPMs). However, in the past five years, research on tourism translation has mainly focused on rendering restaurant menus, tourism websites, and TPMs. Firstly, the growth of digital services has meant tourism websites can directly provide tourists with regional tourism information, this brings a high significance to the power of high-quality translation as it can attract more tourists/money and promote regional tourism. Conversely, Novozhilova, Korolkova, Shovgenina, and Shovgenin (2018) show hotels lose tourists and finance through dysfunctional translation. Taking hotel reservation websites as examples, Novozhilova et al. collect English, French and Russian translations from official hotel websites. They apply critical discourse analysis (CDA) and find grammar, spelling and other issues. These translation problems cause the source text (ST) to lose pragmatic and communicative function. These authors recommend changing sentence structure, loan translation and generalisation strategies. Later Cowan (2019) advances website translation by paying attention to deep 'out-of-awareness' cultural differences in translating. This effect delivers awkward expressions that alienate potential clients. Similarly, when Cowan analyses French wine tourist websites from French to English, she finds poor cross-cultural application. This author applies Hall's anthropological iceberg model and Hofstede's cultural dimensions. She concludes that localised tourism websites are likely to be more successful to engage the UK market.

Similarly, tourism researchers have found menu translation can influence customer satisfaction and the tourist economy. Fuentes-Luque (2016) analyses the quality of restaurant menu translations in Andalusia, Southern Spain, and makes some suggestions for better rendering of menus. He uses a mistake classification framework, combined with a short questionnaire for qualified menu translators. Li (2019) researches translations of ingredients and cooking methods for culturally distinctive Chinese dishes

Table 3
Data collection methodologies applied in the reviewed researches.

Data Collection Methodologies	No.	Percentage
Case study	203	52.3%
Biographic research/Literature review	76	19.5%
Field research	34	8.7%
Documents and records	27	6.9%
Interviews	19	4.9%
Webpage	7	1.8%
Desk research	6	1.5%
Survey	3	0.8%
Other	14	3.6%

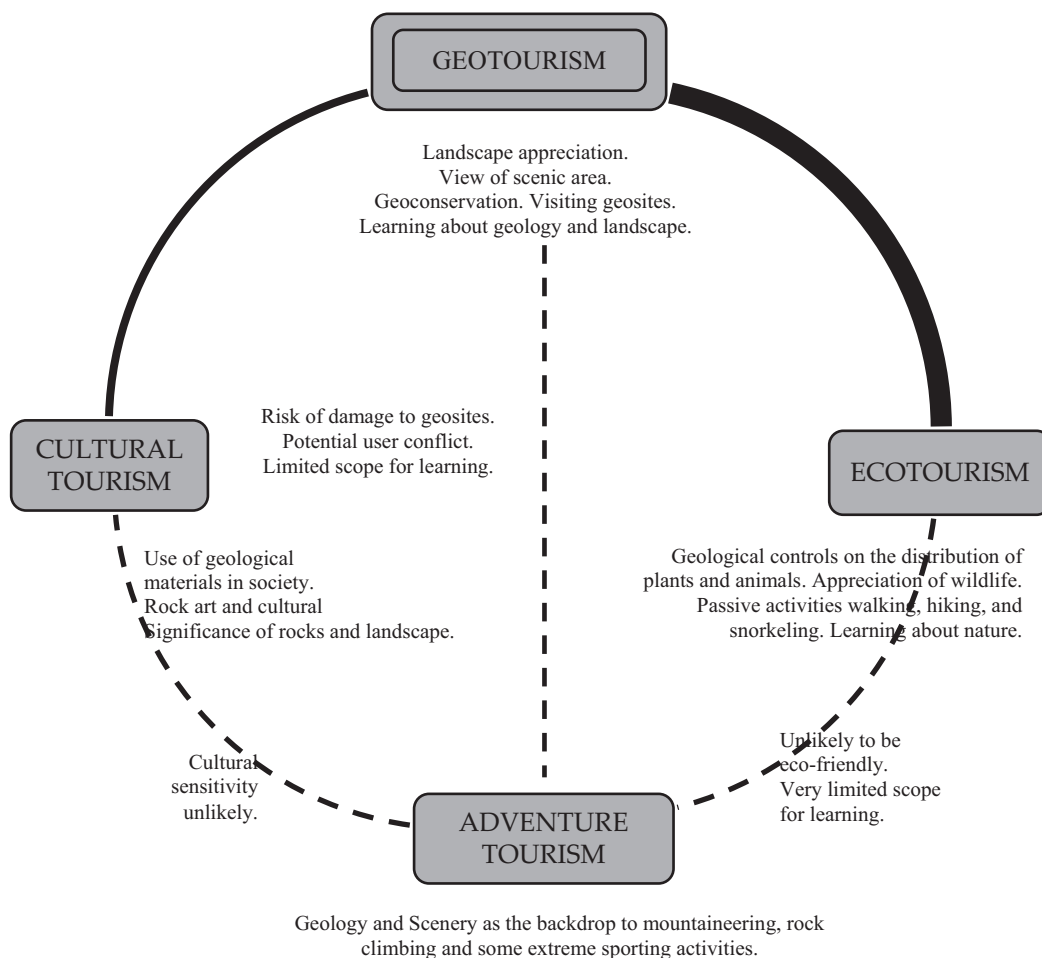


Fig. 3. The relationship between geotourism and other types of tourism (Dowling, 2013).

and finds reliance on image to supplement translation is deficient. She concludes Pinyin (Chinese Phonetic Alphabet) as an intralingual translation menu is attractive to readers. She claims interlingual interpretation can clarify the ingredients, cooking methods and cultural particularities of a dish. This author applies CL to conduct qualitative and quantitative analysis to compare the 3000 translations from China, Taiwan and one other location. Li finds there are many translation problems like omission and inconsistency. This author uses Jacobson's tripartite theory to improve the quality of menu translation. When [Petric, Mikinac, and Edmonds \(2019\)](#) study the menu translations (French to English) in Kvarner, Croatia, they find translation mistakes like misspelling, capital letters, incomprehensibility and inconsistency. They propose translation improvement to promote customer satisfaction.

TPMs also have a need for quality translation in order to be effective. As experts in tourism translation, [Sulaiman and Wilson \(2018\)](#) have advanced the study of TPMs translation. Firstly, they put forward a cultural-conceptual translation (CCT) model. Two key ideas were embedded in this model which are cultural conceptualisation (CC) and destination image (DI). They state CC is the key expression of 'Silent' or 'Unconscious' culture while the concept of DI is considered an essential factor in tourism promotion and advertising. They claim that the effectiveness of TPMs translation depends on the rebuilding of the 'favorable' image of the DI which in turn is based on the CC of the target audience (TA). In their book, *Translation and Tourism: Strategies for Effective Cross-Cultural Promotion* ([Sulaiman & Wilson, 2019](#)) analysis of TPMs translation from English to Malay demonstrates the TT of Malay TPMs fails to reconstruct an attractive DI for Malay TA. This is mainly because it fails to solve the CC differences between English speaking countries and Malay culture. (It is interesting to note their outcomes received an optimistic response from many Malay TAs.) Therefore, they conclude that the CCT model is more likely to be a potential tool for enhancing the quality of TPMs translation.

3.3. Debate about translation strategies, methods, techniques, and procedures

In translation studies, scholars have long debated the application of literal translation and free translation. However, [Vinay and Darbelnet \(2004\)](#) point out the problem is not that simple. They claim literal translation is only one of three different basic

procedures in direct translation. When Shuttleworth and Cowie (2014) published their *Dictionary of Translation Studies* they highlighted free translation and literal translation are just two of the many 'strategies' applied by translators. Van Doorslaer (2007) develops this idea and shapes his own map of 'strategies' adding 'procedures' for them. Xiong (2014) takes the debate deeper by claiming literal translation is, in fact, a translation method based on foreignisation strategy, while free translation is based on domestication strategy. He uses Venuti's translation equivalent theory, to form a modal or system. Furthermore however, there is no agreement on the meaning of terms 'domestication' and 'foreignisation' by scholars. Venuti (1995), Van Doorslaer (2007), and Xiong (2014) all share the same opinion that foreignisation and domestication are translation strategies. However, Gong's (2011) believes they can be methods as well as strategies. Labelling continues to be inconsistent across various studies as it is different over the range of translators. 'Naturalisation' is identified as a procedure by Newmark (1988), while Van Doorslaer (2007) regards it as a strategy. Gottlieb (1992) proposes 'condensation' as an effective strategy for subtitling, but it is a procedure according to Van Doorslaer (2007). Newmark (1988) treats 'synonymy' as a procedure, while Aixela (1996) proposes 'synonymy' is one of the strategies to translate cultural-specific items (CSIs). Qiu (1998) points out 'transliteration' is one of strategies to render CSIs, but it is regarded as a method based on foreignisation strategy in Xiong's modal (Xiao, 2004). Furthermore, there is an overlap of the use of terms for the same meaning. Aixela's (1996) uses 'deletion', Newmark (1988) 'omission' and Van Doorslaer (2007) uses 'procedures' and Xiong (2014) 'technique'. 'Transposition' in Vinay and Darbelnet's modal (Vinay and Darbelnet (2004)) is the same as 'word shift' in Xiong's technique (Xiong, 2014). Therefore, for the purposes of this research, a hypothesis statement has been shaped to determine whether 'strategy', 'method', 'technique' and 'procedure' can be equivalently cross used in translation studies.

More examples of term overlap can be found in subtitling translation. Abdelaal (2019) employs Pedersen's (2005) typology and his quality assessment model (Pederson, 2017) to qualitatively analyse the strategies and translation quality of culture-bound words of subtitling from English to Arabic language. In the 1999 American film *American Pie*, she points out omission strategy is more effective to translate sexual swear words from English to Arabic, because in Arabic culture, these terms are taboo. So 'omission' here is regarded as a strategy. However, it is classified as a procedure by Newmark (1988) and Van Doorslaer (2007). Baker (1992) terms it as a strategy and Xiong (2014) as a technique. In *Talent or Strategies: Y. R. Chao's Translation Philosophy Reflected in the Alice Duology*, Wang (2020) explicitly states literal translation and idiomatic translation are both translation strategies. He takes '游客止步' as an example, giving two idiomatic translations which are 'Tourists Should Stop Their Steps' and 'Staff Only'. He concludes 'Staff Only' is easier to understand than the former, literal translation. In contrast, idiomatic translation is regarded by Vinay & Darbelnet, 2004 as one of four procedures in oblique translation. Thus, across several genres: debate about the terminology and definition of terms can be exemplified to exam the hypothesis statement that the four translation concepts (strategy, method, technique and procedure) can be applied crosswise in translation studies.

3.4. Advances in CTS

CTS has advanced through many stages, since it emerged on the tails of technical linguistic development. Linguistics itself only formed as a discipline in the 1930s. The systematic study of linguistics developed more technical branches in the 1950s and 1960s based on scientific research methods. In the 1970s, with the progress of computer hardware and software, large-scale storage of electronic texts was realised. This enabled many corpora to be built and CL to be employed as a research methodology. CL involves the analysis of a collection or a body of words (McEnery & Wilson, 1996). The word *corpus* is from the Latin word for 'body' and the Latin plural, *corpora*, is used. McEnery and Wilson (1996) further explain the body of data is most likely to be composed of collections of printed or existing language data. Before the 1990s, corpus had not been used in the field of translation studies, instead from the 1980s it was used as a tool for language comparison and translation criticism. In 1996 in original type research, McEnery and Wilson began to apply parallel aligned corpus data to machine translation. Since then, CL in translation studies has been applied continuously. CTS research has meant there has been a marked shift in linguistics from the analysis of the ST to the analysis of the TT that is equivalent and accurate, so that the TT becomes an independent text. The implication of this shift has moved the focus to the importance of the TTs in the receiving culture. According to Biel (2008), this shift, from the ST to the TT, is regarded by Pym (2004) as a 'paradigm shift' in translation studies.

CTS now plays an important role in translation studies and has attracted attention from translation theory and translation scholars. The outstanding representatives of the further development in CTS are Mona Baker, Sara Laviosa, Juliane House, Kefei Wang and Richard Xiao. Baker is regarded as the pioneer of CL in translation studies. In 1993, Baker published, *Corpus Linguistics and Translation Studies: Implications and Applications*, advocating the use of CL and marking the birth of the CTS paradigm. Meanwhile, she contributed significantly to translation theory, pointing out the influence of translation on language (polysystem theory), the importance of recording translation methods (descriptive translation studies) and the central role of the translator's purpose (Skopos Theory). She maintained CL in translation studies would by its very nature of including these aspects, contribute to the advance of translation. Also, she predicts that the emergence of large corpora of original and translated texts and the development of relevant research methods would, by its broad dimension, enable translation scholars to discover the communicative nature of translated texts. In later research (Baker, 1996), she discusses three basic aspects of CTS: (1) the relationship between CTS and target language (TL); (2) the unique methodology applied in CTS; (3) the potential of CTS. Finally, Baker claims that the ultimate goal of CTS is to explore the causes and driving factors of uniformity in the TT, which may be related to the status of the ST in the target culture. As Baker (1999) predicts this has become a central issue. At present, translation scholars are discussing the influence of the various strategies used by translators on the TT. In alignment with her claims, Baker (1999)

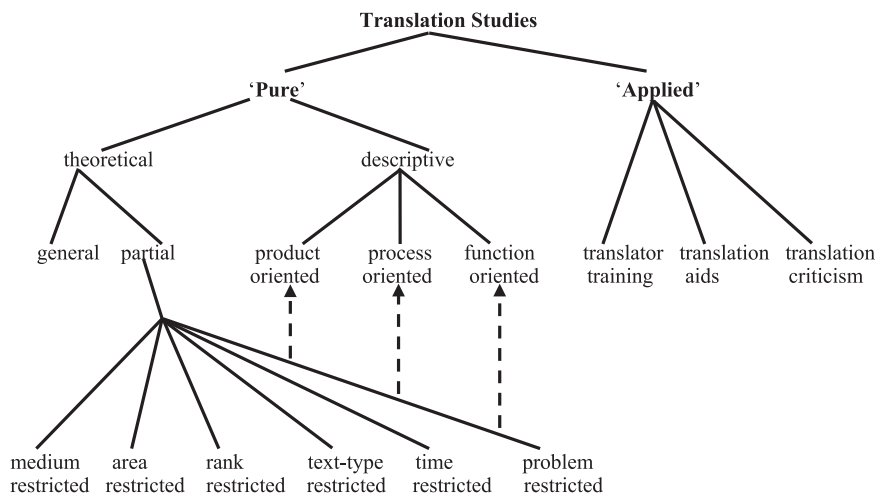


Fig. 4. Holmes' 'map' of translation studies (Toury, 1995).

emphasises that corpus research should focus on the interrelationship of three main aspects of translation process: (1) public expectation; (2) theorist's hypothesis or proposition; and (3) professional translators' practice.

In the 21st century, the issue of influences on translation has continued to be a key focus of research. Laviosa (2002) points out in the initial stages of corpus design, the selection of external, temporary, and the TL system means translation is heavily influenced by descriptive translation theory. Laviosa (2002) analyses the characteristics of CTS and finds: (1) The elements of theory, description, method and application are integrated with each other, but of equal importance (2) The status of competing research methods is very important when comparing translation outcomes. Traditionally in translation research, translation standard models limit research outcomes and in turn limit building effective theories, however in CTS, construction of data for research builds standard translation references and thereby builds more accurate theories. Therefore, she claims CTS describes the process of translation which in turn will advance the development of descriptive translation studies and translation studies as a whole. House (2011) breaks the previous single corpus investigation mode, by creating a composite corpus structure of: English ST, German translated text and German ST. Using the method of abductive reasoning, she investigates the changes between languages through a written language translation from a diachronic perspective. According to House's research results, there are three hypotheses: (1) translation has influenced the change of German language and can be called a 'regulator'; (2) translation reflects the change of the German language but is not the 'initiator'; (3) the process of translation resists change and is the 'umbrella' (protection) of culture. In contrast, in the specialist register of science House (2011) explain it is clear that 'in the scientific field, the influence of translation on German from English is a marginal phenomenon.' (Kranich, House, & Bechor, 2012). Furthermore, they put forward a new research paradigm for corpus analysis that combines analytical-nomology and explorative-interpretation. They predict this research paradigm is likely to become a new trend in the field of CTS.

In Fig. 4, there is a diagram of the overall framework for translation proposed by Holmes (Toury, 1995). This shows a summary of the growth of awareness of influencing factors on translation. Besides the above, representative translation scholars, Wang and Xiao, have made special contributions to CL in Chinese English double translation research. According to Wang (2012), the construction of CL in translation studies system has both horizontal and vertical aspects: the horizontal refers to the construction of corpus related to translation, while the vertical refers to translation research related to corpus. Wang describes theoretical development by drawing a longitudinal outline of the paradigm of CTS, including theoretical research, descriptive research and applied research, as shown in the diagram below (Fig. 5). In this system, research is bidirectional. Therefore, description is the source of theory, and theory can provide guidance for description; description provides guidance for application, and application promotes description. Theory and application are connected through description as an intermediary. Xiao (2004, 2007, 2012), another translation scholar, has made a significant contribution to the construction of C-E/E-C parallel bilingual corpora (C-E/E-C PBC). He and McEnergy (2004) have built the modern C-E/E-C PBC: The Lancaster Corpus of Mandarin Chinese (LCMC). This corpus is compiled in strict accordance with the mode of Freiburg-LOB Corpus of British English (FLOB), and its completion is helpful for comparative study of Chinese monolingual or C-E (E-C) and Chinese studies based on the corpus. Later, Xiao (2004) employs the three corpora, LCMC, FLOB and Freiburg-Brown Corpus of American English (Frown) to describe and compare the stylistic distribution of Chinese, British English and American English. He found that the common feature of these three languages is that stylistic markers appear more frequently in narrative style than in declarative style. The difference of body marks between British and American English is not as obvious as that between Chinese and English. Later Xiao, as a joint researcher with Tao, was involved in the construction of UCLA Written Chinese Corpus. They completed the first (Tao & Richard, 2007) and the second (Tao & Xiao, 2012) editions of UCLA Written Chinese Corpus. This corpus is a scholarly complement to LCMC.

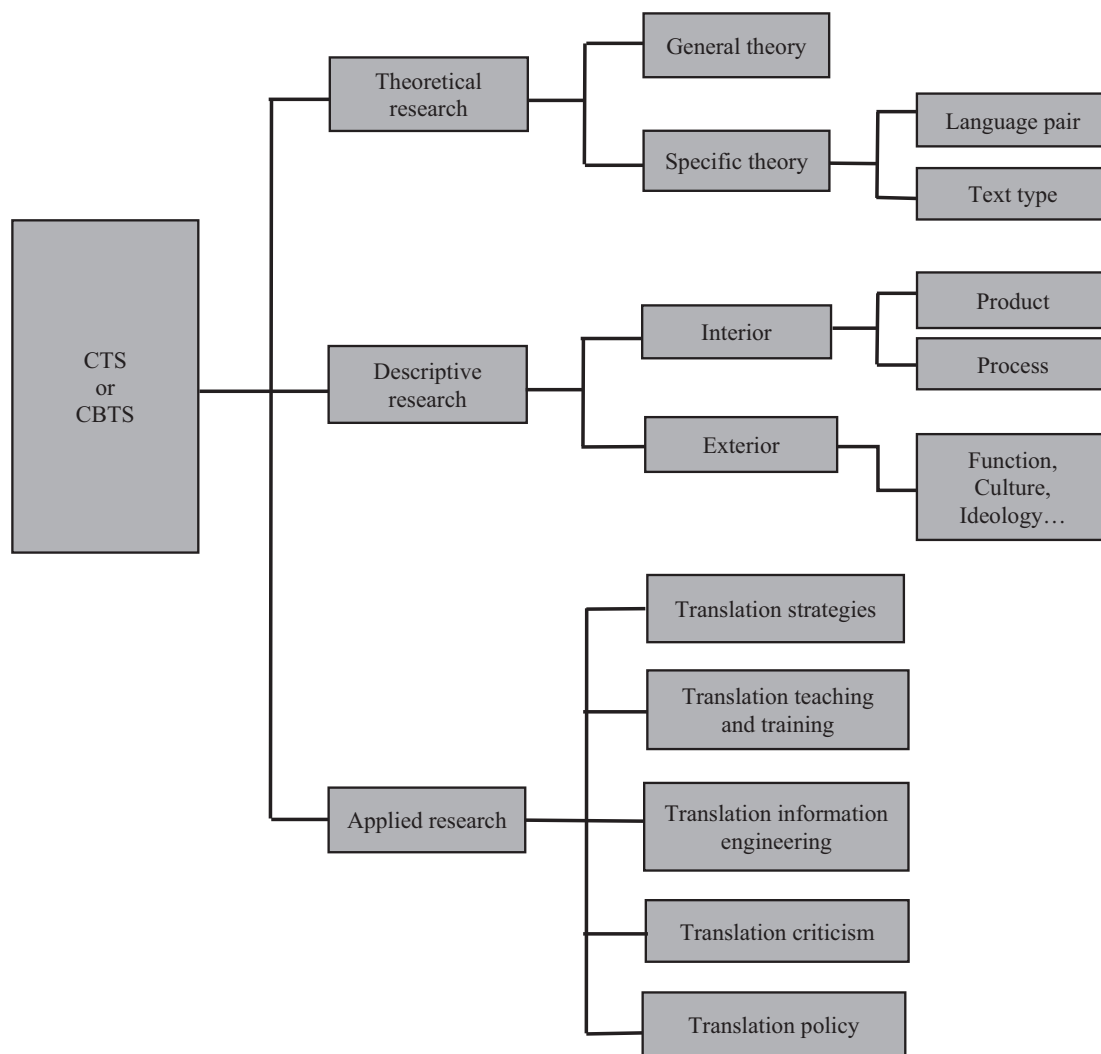


Fig. 5. A paradigm of CTS (Wang, 2012).

3.4.1. Application of corpus methods to the study of translation

As a new branch and research paradigm of translation studies, CTS has birthed great capabilities. CL has enabled the small-scale, manual research on language and text types of traditional translation to be transformed into a rapid, large-scale, systematic, target text (TT) research. The advantages of corpus-based method are (1) speed and accurate in complex analysis by computer; (2) large scale of register, text, and language information; (3) and functional comprehensive results. Furthermore, as a method of translation studies, it shows strong advantages in cultural approach and descriptive method. Corpus not only changes the quantity but the quality of research in translation studies. CTS develops the original direct and somewhat vague concepts of translation studies into clear, detailed and operable theoretical hypotheses. The scattered and incomplete findings of previous studies are marshalled into more consistent and abundant results (predicting the trend and considering the exceptions). Its capability enables CTS to capture patterns of social and cultural factors, such as the relative status of languages and literary genres. There are minor disadvantages, however, pointed out by Laviosa (2002) who notes that the word/phrase concordance as an analysis tool cannot sometimes provide enough context, thus hindering the analysis of the whole text and/or semantic phenomenon. Further, this author draws attention to the fact that with CTS only one translated text is usually included from a ST, which hides an important aspect of translation phenomenon, that is, there may be different versions of the same ST word/phrase.

In recent years, the Corpus approach has been employed in many genres in translation studies, such as: literary translation, tourism translation (discussed in 3.2.), legal translation (LT), audiovisual translation (AVT), and political discourse translation (PDT); not to mention sub-genres such as International Economic Law (IEL), and business law (BL). Furthermore, rendering IEL has become a significant factor in fostering cross-cultural communication and in the modern global economy therefore, translation in this subgenre has developed a high profile and increased its importance. CTS shows itself a skillful tool in this area. Based on parallel corpus, Chen (2017) examines and discusses the feasibility of the translation of legal terms used in IEL at three linguistic

levels: word level, syntactical level and discourse level especially in focusing on the influence of cultural elements. Then, Chen explores the application of corpus-based approach in interdisciplinary research by applying quantitative and qualitative analysis of the translation strategies of three non-linguistic aspects of IEL: law, economy and culture from the perspective of Chinese translators. She finally concludes that cultural elements in the non-linguistic factors have the greatest influence on IEL translation. This author recommends cultural factors need to be understood and transformed into clear communication in the TL. Chen's research can be compared to Medina's (2019). Medina (2019) points out in American BL, because of various geographical situations, and their diversity of existing entitlements, names are changed, and different degrees of equivalence are produced. This author takes Peru, a Spanish speaking country, as an example, and finds the use of terms is not equivalent. Medina proceeds to build a typology for the cause of the denominative variation, which was originally put forward by Freixa (2006), that is, she tests the existence of dialects and cognitive variations in American BL language compared with Peruvian BL language. It is found that some variations are limited to specific American states or specific kinds of business organisations and cannot be utilised interchangeably. This study enriches the research of legal translation studies (LTS) and provides a comprehensive methodology for translators to solve the problem of equivalence in business documents. Both these CTS method studies have uncovered important practical translation challenges and offered strategies.

Secondly, Corpus approach has been applied in AVT. There are two sub-genres in AVT which are subtitling and dubbing. Soares's (2020) researches the simultaneous use of these two sub-genres in the movies, *Ice Age* (2002) and *Madagascar* (2005) in English and Portuguese fixed expressions. CTS analysis was used to show how domestication and foreignisation strategies can either destroy or strengthen the authentic relationship between dubbing and subtitling. This author's research concludes subtitling is more inclined to adopt foreignisation but not when it comes to fixed expressions (idiomatic usage). Translation deliberately deviates from them for the TL. Similarly, Pavesi (2018), claims corpus offers advantages in translation research for audiovisuals. Sandrelli (2020) adopts Ranzato's (2016) strategies for English to Italian dubbing of legal references in *The Good Wife*, an American courtroom drama TV series. The results show that the most frequently used strategies in corpus are functional equivalents, periphrases and calque strategies, but a mix of strategies are needed dubbing a foreign legal drama. Alexander's (2020) research of subtitling strategies of Extralinguistics Cultural-bound References (ECRs) finds the linguistic cultural elements are closely related to the original language (English) of an English courtroom drama (*Suits*). Meanwhile, some poor-quality translations of ECRs in *Suits* were assessed and improved by this author through Pederson (2017) FAR Model (a model to exam the quality of subtitling). This author summarises a framework of strategies in ECRs to support future subtitle translation. These examples show how CTS can be applied to new technologies which demand great quantitative detail and deep analysis to determine cultural and technical translation improvements.

The rise of China as a global player had demanded a new appraisal of Chinese political discourse translation (CPDT). Li and Xu (2018), Li and Zhu (2020), Li and Pan (2021) as well as Li and Hu (2021) use various corpora to shape different C-E parallel corpora and research CPDT. Li and Xu (2018) analyse translation of appraisal epithets in graduation ceremonies. By this means, they aimed to examine a person's attitude to China compared to other countries. In C-E PDT, attitudes to China become less positive and those towards other countries become less negative. Meanwhile, they find translation participants adherence to politeness strategies. In a later research, Li and Zhu (2020) examine the lexical items reflecting attitudes of China and other countries in political discourse. They find (1) Chinese political discourse (CPD) represents the ideological level of positive Self/ negative Other linguistic terms; (2) While raising the negative image of 'Others', China is also raising the negative image of 'Self'; (3) When expressing Self attitude through CPD, more external voices are allowed. Similarly, Li and Pan (2021) select 90 high-quality translations from the work reports of the National Congress of the Communist Party of China. The work reports of the central government are white papers translated by Chinese professional translators and reviewed by native English speakers. These English translations and Chinese form a parallel corpus of Chinese and English political discourse. Van Dijk's ISM (Van Dijk, 1998) was applied to analyse the reconstruction of China's image. This research demonstrates three outcomes: (1) translation shifts frequently occur in the evaluative epithets in CPD, but equivalence translation is used by translators; (2) Among three subcategories ('graduation', 'engagement', and 'attitude') of AS, the translation models of evaluative epithets are different. Based on previous studies, Li and Hu (2021) develop translation strategies of evaluative epithets in CDP among three subcategories ('graduation', 'engagement', and 'attitude') of AS and in 'Self' and 'Other' categories. They summarise translation strategies for each category for future CPD translators to avoid this cultural dysfunction, thus serving CPD.

3.5. Application of theoretical framework, Hu's eco-translatology, in translation studies

As an interdisciplinary translation theory, Eco-translatology conducts a holistic study of translation from an ecological perspective. Hu (2001) pioneered this theoretical method of translation based on Darwin's ideas of natural selection and adaptation (Darwin, 1859). According to Darwin's principle, natural selection and adaptation mean that the fittest survive and the unfit are eliminated in the struggle for survival in the environment. Similarly, in Hu's theory (Hu, 2001), if the translation meets the needs of society and target readers, it will be 'retained', otherwise it will be 'abandoned'. Hu (2001) proposes translation be centered on the translator who must strive for an ideal of cross-cultural equilibrium. Hu (2003) further points out during the translation process, translators should focus on the transformation of 'three dimensions', namely 'linguistic, cultural and communicative dimensions. Translations' linguistic dimension pays attention to the forms of the original linguistic features; the cultural dimension focuses on the transmission of recognisable elements of meaning between English and Chinese; and the communicative dimension focuses on whether the intention of the original is reflected in the translation. Thus, the translator must consider the differences between English and Chinese in: thinking mode, language expression, habit and culture. In other words, the translator

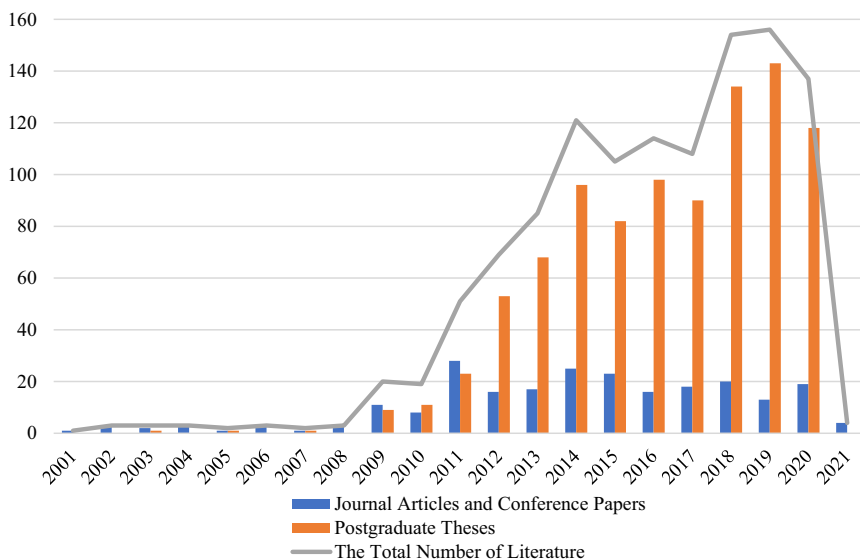


Fig. 6. Data and quantity of literature on Eco-translatology in China.

must consider the whole ‘translational eco-environment’ when translating. A translational eco-environment refers to the worlds of the ST and the source and target languages, comprising the linguistic, communicative, cultural, and social aspects of translating, as well as the author, client, and readers (Hu, 2003). Therefore, the quality of translation depends on the translator’s adaptation to the ecological translation environment.

The emergence of Eco-translatology has proved foundational to modern Chinese translation studies over the past two decades. It has been overwhelmingly adopted by most Chinese scholars. For the purposes of this paper, a search was made in CNKI to analyse Chinese literature publications on Eco-translatology from 2001–2021. Keywords: ‘适应/选择/翻译/三维转换 (Adaptation/Selection/Translation/Transformation of three dimensions)’ and ‘生态翻译学 (Eco-translatology)’ were used. Initially, 3688 pieces of literature were found; the earliest, was Hu’s work in 2001. Next, the criterion was tightened for academic literature which brought the relevant literature total down to 1163. The specific publication time and quantity are shown in Fig. 6. It can be seen from the chart, since 2001, the total number of items related to Eco-translatology has steadily increased overall with some minor fluctuations, reaching a peak of 156 in 2019. There are two main reasons for this growth trend. First, many translation scholars began to use the basic terms, concepts, and research methods of Eco-translatology to study translation problems and translation phenomena. The implication of this is that the ‘Eco-paradigm’ of Eco-translatology gradually shaped a formative academic influence. Second, as the research system of Eco-translatology in China improved and was enriched, a strong translation research school was formed and enabled excellence in further research.

Chinese literature applying Eco-translatology mainly focuses on four areas: reviews and comments, theoretical discussion, translation practice, and translation pedagogy. The distribution of these four areas is shown in Fig. 7. From these two pie charts, it can be seen that in the field of Eco-translatology in China, whether in theory or pedagogy, Eco-translatology has triggered the attention of many scholars. In terms of journal articles and conference papers, the percentage of theoretical discussion is the largest contributor (59%) followed by translation pedagogy (30%) and translation practice (9%). The smallest proportion is accounted for in reviews and comments (2%). In contrast, postgraduates overwhelmingly focus on researching theoretical discussion (74%) though there is a substantial work on translation practice (26%).

According to Fig. 6, it is clear, the development of Eco-translatology can be divided into two stages: the initial stage (2001–2008) and the development stage (2009–2021). The initial stage (2001–2008) of Eco-translatology is mainly the proposal and

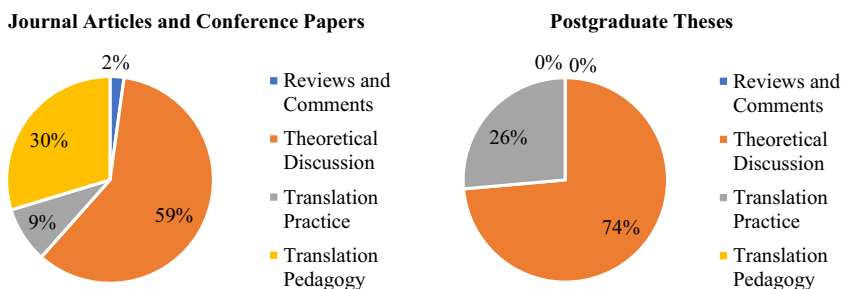


Fig. 7. Topic distribution of Eco-translatology in China.

construction of this theory. Hu (2001), the pioneer of Eco-translatology, published the first article about Eco-translatology to explain it from a theoretical perspective. Later, he (2003) published *Translation as Adaptation and Selection on Perspective*. These early papers discuss the translation adaptation to the ecological environment and how selection is made for translation. A more systematic construction of the theory of adaptation and selection of translation soon followed, laying the foundation for the development of Eco-translatology theory. Thus, drawing a parallel to Science, Hu (2004) introduces Eco-translatology boldly as he borrows the basic principles of 'natural selection' and 'survival of the fittest' in Darwin's theory of 'Adaptation and Selection'. In Hu (2006, 2008), he continues to develop the theoretical basis of Eco-translatology. The main contents are (1) the construction of philosophical motivation of translation adaptation and selection in translation process through a translator centered view and (2) the elaboration and proof of translation theory. Even in the early stage of the theory's development and construction, other scholars, Liu and Xu (2004), Li and Huang (2005), as well as Zu (2007), in addition to 37 postgraduate theses, fully affirmed this theory.

The characteristic of the second stage (2009–2021) of the above graph is the sharp increase in the number of research papers, the number of researchers at different levels, and the scope of research. As can be seen from Fig. 6, Huang (2009), Jiang (2009) was the landmark year of Eco-translatology development. In this year, Hu completed its unique theoretical framework. Besides Hu, Sun, Huang, Jiang, and Liu published many papers on empirical research to test and develop the theory. After 2010, theoretical and empirical studies continue to deepen. Hu (2010) makes a more detailed theoretical elaboration which makes his theory clearer; he further compares translation ecology and natural ecology. Also, he points out the direction for the future development of Eco-translatology.

Meanwhile, other scholars began to explore the theory and practice of Eco-translatology from different perspectives including analysis of translated texts, and in regard to foreign language teaching. Using Eco-translatology as their guiding theory, Jiao (2010), Zhao (2013), Zhang (2018), Wang (2019) and Chen (2020) respectively analyse classic C-E translations of *Tian Yan Lun*, *A Dream of Red Mansions*, *The Analects of Confucius*, *Journey to the West* and *The Peony Pavilion*. Using a now well-established perspective, conceived by Hu (2006, 2008), of the overall ecological translation environment and the principle of 'three dimensions' (linguistic, cultural and communicative), they analyse the reasons for the success of these classic translations. They point out only by adapting to the ecological environment (which includes linking to target readers) can translators render these classics effectively. Furthermore, Yu (2017) compares two Chinese versions of *The Vagina Monologue* (original in English), and analyses one translator's version using the three dimensions (linguistic, cultural and communicative). This version through the adaptive ecological environment, the author explains, is why one version is superior and survives longer than the other. Shu (2010), Chen (2016), Wang and Yang (2018), Ding (2018) and Zheng (2019) analyse and give guidance for the effective translation of different types of public signs, public signs in film studios, TCM hospital signs, tourist attractions and road traffic signs. From 2013 to 2017, there are 37 postgraduate theses on the text analysis of film titles and subtitles. Also scholars analyse film title translation and subtitle translation from the perspective of the 'three-dimensional transformation'. Liu (2009), Guo (2011) and Yang (2019) analyse the text of news translation. Liu (2009) analyses and discusses the effective translation of metaphorical idioms in news reports from the perspective of Eco-translatology. Similarly, Guo (2011) analyses and explains 'faithfulness' in translation from E-C news. Yang (2019) believes news translators play a central role in the process of 'soft' news translation. In addition to the above text genres, Internet language, advertising language and poetry are also analysed by translation scholars under the guidance of Eco-translatology. All these examples are strong evidence for the wide application and academic analysis shows the effectiveness of Eco-translatology.

In addition, and significantly, Hu was the first to study the translator's thought process using Eco-translatology. Hu (2009) interprets and discusses translation thoughts of another Chinese translator pioneer, Fu (1957). After Hu, many translation scholars interpret the translation thoughts of different translators. Sun (2009) discusses Zhang's practice and ideas. Tong and Huo (2010) explain Chang's marginalised identity as a translator. Liu (2011) believes Xu's translation activities are the result of his constant adaptation of the multi-faceted and multi-level translation environment. Deng and Meng (2012) claim the evolution of Wang's translation thought is consistent with context 'fit' and neutralisation. Moreover simultaneously, questions about Eco-translatology have emerged: Leng (2011) and Wang (2011) question the relevance of Eco-translatology: whether the translator should be the central reference point. Later, Hu (2011) responds to them, defending his work. Thinking critically, Chen (2014) points out three significant paradoxes of Eco-translatology: (1) The ecological environment is regarded as the overall environment of the translator and the TL, ignoring its 'cross regional' characteristics, which is contrary to the nature of translation differences; (2) Too much emphasis on translator centeredness in the process of translation can show a one-sided and narrow value orientation, which is contrary to ecological ethics; (3) Taking adaptive selection theory as the 'backbone' of Eco-translatology ignores the broader research space, which is contrary to the fundamental concept of Eco-translatology. Hu (2014) also responds to Chen's three paradoxes and gives him some guiding suggestions including the idea that the emergence of multiple voices shows the concern of Eco-translatology and may promote improvement of Eco-translatology. In a similar vein, Song and Hu (2016) focus on several key ethical issues in the field of translation studies, such as translatability, and retranslation. Continuing in the spirit of development, Hu (2017) proposes a wider application of his theory to translation teaching, translation history, translation criticism, translation ethics and translation schools.

Finally, the application of Eco-translatology in translation pedagogy has proven a promotion of research and teaching. In the light of Eco-translatology, some scholars have proposed basic design concepts for translation textbooks in colleges and universities. Tao (2012) points out translation textbooks should have balance and conform to the basic concept of ecological design. Specifically, she proposes translation textbooks should promote the connection between translation knowledge and learners' personal experience. Li (2012) promotes Eco-translatology designed teaching material and Hu (2017) himself even suggests a system tailored for translation textbooks. Deng (2012) analyses the effective teaching methods of Eco-translatology in MTI, and proposes a

new mode of MTI interpretation teaching from a theoretical basis and goal orientation. Shu (2014), using Eco-translatology, researches teaching objectives, contents, methods and evaluation system, so as to integrate information technology with translation teaching. Zhang (2021) proposes English teachers can fully combine the ecological translation theory with the translation teaching of cross-cultural theory. These examples show Eco-translatology has stimulated development in translation teaching and pedagogy research.

This overall review shows the wide development and acceptance of Eco-translatology in China. Notably the broad applications of the theory of Eco-translatology to study specific translation phenomena, and the uses in the development of teaching translation have been shown.

In contrast, scholars in other parts of the world have not widely recognised the value of the tool of Eco-translatology. It has attracted only a handful of overseas translation scholars. Scott (2015) discusses poetry translation from the perspective of Eco-translatology, and points out its main benefit is to enhance readers' Eco consciousness in the translation of any text. Cronon (2015) made an analogy between language translation and food value and advocated the construction of a new ecological translation system. He agrees with McEntyre (2009) that 'language, like water, land, animals, plants and food systems, is another valuable and shared resource, which needs to be well managed and should not be easily consumed like disposable goods.'. Magagnin (2020) proposes the purpose of Eco-translatology resonates with the knowledge production policy of the People's Republic of China and the national ideological agenda. He claims this self-proclaimed discipline supports the promotion of 'Chinese discourse' in the field of translation studies and Chinese scholars and theories in the international scientific community. He politicises Eco-translatology as ultimately contributing to the construction and consolidation of Chinese academic power and influence. Perhaps the Western lack of recognition can be explained by this perspective.

3.6. Research on current geotourism translation

Because the field of geotourism translation has so recently emerged, no scholarly journal articles or academic books have yet been published. Therefore, data is the only foundation to identify the translation needs of this genre. For the purposes of this current research, geotourism translation can be researched in the following four locations: (1) GSA; (2) six Chinese geoparks accredited by UNESCO; (3) four recently published C-E tourist guidebooks from Chinese geoparks; (4) geology guidebooks published in Chinese and English by the Hong Kong Geopark. The significance of this data selection includes the values that: (1) geoparks are quality geotourism destinations; (2) the geology and geomorphology of activities in these parks necessitates a high level of linguistic detail when translating technical jargon or complicated ecological and cultural processes or explanations linked to these activities. (3) geoparks are a convenient way to gather primary data. These data are publicly available from a variety of source types: brochures, pamphlets, interpretative panels, signs, display boards, and museum displays particularly at entrances, visitor centers, and museums. To minimise bias, from obscure venues, the data were gathered solely from popular and easily accessible public sources. For the purposes of research for this article, data was categorised into the three foundational categories of geotourism: A, abiotic (GFs and GPs), B, biotic (plants and animals), and C (cultural items and influences). These categories include particular language features, an information hierarchy, and some cultural factors that are essential for effective translation.

Firstly, for organisational purposes when looking at translation data, three significant points should be noted. (1) There are many technical terms in GFs of the STs which are difficult to translate. These terms can be divided into two groups: those that have equivalent words in English such as '辉绿岩 (diabase)', and '侵入岩 (intrusive rocks)', and those that may not have an equivalent because of some cultural gaps or differences, like '丹霞山' '丹' and '霞' which are colour names or characters only occurring in Chinese. (2) Another notable point is that the explanation of GPs is often expressed in many long and complex sentences in Chinese STs. For example, '距今一亿年左右, 受燕山运动影响, 在泰山南侧形成泰前断裂, 泰山开始抬升, 覆盖在上面的沉积岩被剥蚀, 泰山古老岩石漏出地表, 形成泰山的雏形.' which can be translated into 'About 100 million years ago, under the influence of Yanshanian Orogeny, the Taiqian Fault came into being in the most southern part of Mount Taishan. Then Mount Taishan began to lift up. The overlying sedimentary rock on Mount Taishan was eroded and the embryonic form of Mount Taishan was revealed, with the exposure of its ancient rocks.' This is an example of the long convoluted Chinese ST style. Most GPs in the English TTs are shifted to passive voice to bring the nouns forward in the sentence for emphasis. For instance, '距今3千万年左右, 受喜马拉雅运动影响, 泰前断裂, 中天门断裂, 云步桥断裂运动, 形成了泰山的三个阶段, 泰山基本轮廓确定.' was rendered: 'Dating back 30 million years ago, beginning with the original Himalayan movement, the Taiqian, Zhongtianmen, and Yunbuqiao Faults formed three step faults which in turn determined the basic outline of Mount Taishan.' (3) The final note is concerning some CEs in Chinese STs are difficult to interpret because of unique historical, religious, architectural and poetic culture. For instance, '织金苗族人是蚩尤的后裔之一.' should be rendered: 'Hmong in Zhijin is one of the descendants of Chiyou (the head of Jiuli Clan).' In this sentence, '蚩尤' is translated into 'Chiyou (the head of Jiuli Clan)' instead of simply, 'Chiyou'. '蚩尤' is a character that contains a rich Chinese historical nuance which connects in meaning to the head of the tribal alliance of the Jiuli Clan who in ancient times inhabited downstream of the Yellow and Yangtze Rivers. The oversimplified translation into 'Chiyou' (using Chinese Pinyin) would lose, for the target readers, the depth of the meaning attached to this Chinese character. This is an example of the translation strategy of addition for a cultural element.

Before examining data, another important and more complex issue to take account of is the strong relationship between some of the abiotic elements in GFs and GPs and the biotics (fauna and flora) elements. This is because some local plants and animals are supported by GFs or GPs therefore their characteristics, appearance and habitat are closely affected by GFs and GPs. In fact, the introduction of some plants and animals is dependent on some of the GPs and GFs. Therefore, the unique geotourism names can be synthesised with the GFs and surrounding habitat. Care is needed to deconstruct in translation for geotourists. An example is

an animal, ‘猕猴主要栖息在山石峭壁，溪旁沟谷和江河岸边的密林中或疏林岩山上，群居。’ which is translated ‘*Macacamulatta*, a social animal living in forests, prairies or in bogs, particularly in the sparse mountain forest or the dense forest on steep cliffs, in valleys or by riverbanks.’ A second example is related to a plant, ‘落叶乔木，高达15米，胸径40厘米，小枝粗壮，幼时有绢毛。产于安徽，浙江西部，江西(庐山)，福建，湖南南部，广东北部，广西北部 and 东北部。生于海拔300-1,400米的林中。’ translated: ‘With a height of 15 m and a DBH of 40 cm, it is a deciduous tree featuring stout branchlets which have sericea in the juvenile stage. It is produced in the forest with the altitude of 300-1,400 m in places including Anhui, western Zhejiang, Jiangxi (Lushan Mountain), Fujian, southern Hunan, northern Guangdong, and northern and northeastern Guangxi.’ A more complex type of example is shown in Supplementary Material Section (Data 2) where the element is formed through a relationship of plants and animals: ‘三叶虫化石 (literally trilobite fossil)’; and ‘石生树 (literally, tree growing from rocks).’ The latter was possible because of were biological weathering. A different but complex example is in the use of biological names, mostly from Latin (that are hard to pronounce and remember) and the use of Chinese local names. Firstly, it is unhelpful if translators only use Latin to render biological names. For instance, ‘蛤蒾’ is a kind of pepper plant according to its interpretation. Thus, it can be translated into ‘*Piper samentosum* Roxb (Pepper Plant)’ rather than the Latin ‘*Piper samentosum* Roxb’; nor it is helpful to render it into Chinese Pinyin ‘Halou’ which has no significance to English speakers. Besides, translators cannot translate Chinese local names literally. For example, ‘田鸡’ is literally ‘chicken in the field’ but means ‘edible frog’ and untranslatable to English culture; secondly, ‘影树’ is actually jacaranda, but literally is: ‘shadow tree’ because of the particular shaded light underneath it in daytime. Therefore, the principle used in translating biological names can be quite different from translating geological names or terms.

For the purposes of exemplifying for future geotranslation, the researcher analyses the raw data to formulate some culturally effective strategies. To facilitate clarity in the process of translation, these strategies are organised into the three foundation levels: A, abiotic (GFs and GPs), B, biotics (fauna and flora), and C, cultural, elements (CEs). Specific examples of this organisation are in Supplementary Material Section (Data 2).

While processing the raw data several translation problems were identified which mainly include four types: (1) ‘Use Chinese Pinyin to Replace English Words (UCPREW)’, (2) ‘Mistranslated’, (3) ‘Not Translated (NT)’, and ‘Incongruent Translation for Same Name (ITSN)’. Examples of these four problems of geotourism translation are illustrated in Supplementary Material Section (Data 3) under the three types (or foundation levels).

Apart from the data and information from the geoparks via field research and the data provided by GSA, there are two innovative dictionaries of geotourism: *A Grand Tourism Earthscience Dictionary* (Chen et al., 2013), and *Dictionary of Geotourism* (Chen, Ng, Zhang, & Tian, 2020). The former is in Chinese and the latter in English, edited by the same authors. Each dictionary has more than 3000 definitions. The content of these two dictionaries is systematic and comprehensive, covering natural landscape and human landscape entries in geology, geography, ocean, atmosphere, hydrology and other disciplines. At the end of the dictionaries, there are appendices and indices. Text is facilitated by many diagrams and photos. The entries follow scientific information, and the definitions are accurate, concise, and accessible. Both have become popular self-help travel manuals for tourists to understand human and scientific knowledge of landscape. However, these dictionaries do not employ the ABC approach. However, Gulas, Vorwagner, and Pásková (2020), employ Dowling’s ABC concepts (Dowling, 2013) in their research on Styrian Eisenwurzen, the UNESCO Global Geopark in Austria. These authors’ objective is to engage local residents in the protection of the region’s geoheritage and natural resources, as well as to increase the region’s visibility and tourism appeal. They conclude the use of the ABC interpretive concept can enhance both the landscape conservation and geoheritage by its improvement in communication of data. Pásková, Zelenka, Ogasawara, et al. (2021) also applied the ABC concept with qualitative method to interpret and compare two UNESCO Global Geoparks, one in Japan and the other is Peru: the Colca canyon and volcanoes in Andagua (Peru) and Muroto in Japan. Their results contrasted the two different situations: a high level of visible ABC application can be seen in the Muroto Geopark interpretation, whereas the Andagua Geopark interpretation needs to develop the local people’s knowledge of cultural aspects into their Earth heritage interpretation.

4. Discussion

This project, as foundational research into the new field of geotourism, has taken a comprehensive approach to gauge the status of the current data and literature of geotourism in order to establish a systematic model for C-E geotourism translation. The research objective to explore culturally effective strategies is driven by an interdisciplinary corpus method and framed by the theories of Hu’s Eco-translatology. Literature was searched, analysed and filtered by relevance to the research objectives. First, literature from tourism (closely related to geotourism) translation was examined in the areas of description, discourse, menus, websites and TPMS, in the past five years. Second, this paper considered the issue of translation methods used in the relevant literature. It was shown, translation theorists have long argued about translation strategies, methods, techniques and procedures and even the correct use of these terms is debated. It was concluded that translation scholars hold a wide range of different views on each of these terms. For future analysis in geotourism translation, it is therefore proposed these four terms (strategies, methods, techniques and procedures) be employed synonymously to facilitate a systematic taxonomy of geotourism translation strategies. Third, the issue of advances in CTS was discussed, in particular, linguistic development of CTS, and the formation of a CTS paradigm. As well, application of corpus to translations was evaluated. Finally, examples were included about the use of corpus as a method to study some E-C/C-E translated texts. Significantly, it was noted, at present, there are no translation publications based on geotourism or the corpus of geotourism. In regard to the development of theoretical frameworks, Hu’s Eco-translatology was selected, discussed and examined in its application in E-C/C-E translation pedagogy. Two distinctive results were noted in these particular studies: (1) as a guiding theory, Eco-translatology has been well proven in its wide use in C-E/

E-C translation of various genres such as literary translation, subtitle translation and tourism translation, and pedagogy; (2) the significant imbalance of Eco-translatology's application between East and West maybe understood in terms of its political interpretation by westerners, not in intrinsic value terms. Understandingly, since it is a new field there is no current research in geotourism translation, nor, by correlation, has Eco-translatology been employed as a theoretical framework to this field of study. These are two well defined research gaps. Finally, attention was given to the only reference for UNESCO data from Chinese global geoparks: the Dictionary of Geotourism (Chinese or English version) however, this dictionary does not include any reference to the systematic ABC categories of geotourism which are recommended by recent research and will facilitate the proposed data research. This literature review may have clearly described the status of geotourism translation research and its related fields, the available methodologies and theories available for future research, as well as the research gaps.

Although yet without its own literature, an analysis of data was done (see Data 3 in Supplementary Material Section) to demonstrate the types of translation challenges faced by this new field. Some of the complex nature of these challenges was revealed by the approach of three categories (ABC) of geotourism translation. As mentioned previously, specifically these were rendering:

- abiotic elements (geological phenomena: GFs and GPs),
- biotic elements (flora and fauna), and
- unique Chinese cultural elements (historical, architectural, religious, artistic, and poetic).

These are found on geopark brochures, pamphlets, interpretive panels, signs, display boards, and museum features. The first finding by analysis was there are many technical challenges of translation: scientific jargon and expressions. Since the target of translation in geoparks are the public visitors, the register of geotourism translation should appeal to them, not to scholars or officials. To this end, some translation direction and vocabulary suggestions are offered via a summary of some effective geotourism translation (see Data 2 in Supplementary Material Section). The second finding was there are significant grammatical contrasts between the language styles which are challenging to translation. First, the Chinese GPs are complex and in convoluted sentences but when translated, English TT require a short and simple style. Thirdly, it was found there are difficulties at the biotical level (names, biotical information and the formation of GFs by animals and plants). This biotical level has three types of difficulty: translating the Latin biological names, the local Chinese names (meaningless in literal translation) and briefly mentioning the habitat codependency of animals and plants. Fourthly, it was found that without translation precedents, CEs are often difficult for semantic, style and cultural equivalence. To effectively translate and overcome these four obstacles, recommended translation strategies within the framework of Eco-translatology were applied. These findings mean the translation goals of accuracy, completeness of meaning, readability, and sufficient cultural interpretation for English geotourists can be fulfilled. By this method, that is, using the theoretical framework, the ABC approach and ecological strategies, it is proposed the translator may arrive at a model standard of geotourism translation. Finally, given the innovation of this new genre, it is expedient to carry out testing of the quality of geotourism translation using a model similar to Pedersen's FAR Model (a model used to exam the quality of subtitling, mentioned in 3.4.1). With quality translation of geodata, guides or interpreters, can fully engage with and use this information in geoparks. They may prepare by reading the geopark material before they take geotourists through, and if they do not understand the data, they can ask their supervisor to explain it. Besides, they might lookup certain difficult words themselves in the geotourism dictionary, to be fully prepared to guide geotourists.

5. Conclusions

Although much attention is being paid by geologists and geotourists to geotourism, C-E translation effectiveness has not been addressed by research and is urgently required to serve geotourism's objectives to educate and inspire conservation of Earth's heritage. Thus, a fundamental research gap was found in the publication of matter on the systematic translation of C-E geotourism. A further gap was discovered in the need for a systematic model to guide the translation of C-E data. This project of C-E corpus-based geotourism translation study, guided by Hu's Eco-translatology points to both the necessary translation amendments and a reliable system of guidance for future translators. A review of literature was used to shed light on the methodology (Corpus) and framework (Eco-translatology) but only literature by renown translation scholars and linguists was used and limited to the last five years to connect to the most current issues. Thus, the review of tourism translation, CL development and the application (CTS) provided a pioneer corpus as a method and as a theoretical application of Eco-translatology to this undeveloped area of research. Collation of the corpus results provides a guiding model for the work of future geotourism translators. To strengthen the translators' use of this system, a quality assurance test (SSC model) has also been constructed. Given the fundamental absence of research in this new field, there is vast scope for further geotourism translation research. Therefore, projected research work is planned as follows:

- Further research to identify effective translations and translation problems in ABC categories based on the register of geotourism (principles of geotourism translation and interpretation).
- Further development of the SSC Model by using more categorised examples.
- Further field work aimed at collecting more examples to enlarge the existing corpus and widen its application of analysis.
- Construction of a summary of geotourism translation strategies which will provide a taxonomy which will be another tool for translators.
- Further field work aimed at construction of a comprehensive taxonomy which includes not only strategies but elements of the underlying framework theory and quality assurance system.

It is hoped these five major research tasks will firmly establish geotourism's practical and theoretical framework for future geotourism translation excellence. Meanwhile recently, Li et al. (2022) have used the ABC concept to explore culturally effective strategies in A and C element. They have summarised and recommended effective strategies in A and C to translators, interpreters, and trainee guides. It is also possible geotourism researchers can potentially widen the E-C research data base by considering geotourism in other countries, for example in the Blue Mountains National Park, a world heritage area in Australia.

Author contributions

Qiang (Jason) Li as corresponding author and author 1, with the help and guidance of Dr Young Ng, collected all literature and then read and eliminated them by himself. Finally, he wrote a complete literature review alone. Dr Ng as author 2, apart from providing some extra supplementary literature, he also provided extra knowledge about geotourism for Jason. This helped Jason to successfully complete the literature review. Besides, Dr Ng carefully checked the manuscript and gave some comments to Jason before submission. Ruixue (Rachel) Wu as author 3, gave Jason some advice on framework and structure of review. The research guidance of Dr Ng and Rachel are produced on Zoom.

Funding

This research received no external funding.

Declaration of Competing Interest

The authors declare no conflict of interest.

Acknowledgments

I thank the anonymous reviewers for their comments on my literature review.

Appendix A. Comprehensive list of linguistic jargon

NO.	Linguistic Term	Comments
1	Addition	It is also called annotation. This strategy can make up for the absence of equivalent words in the TL.
2	Calque/Loan translation	A new neologism was generated and employed in the TL by translators through adopting the structural features of the SL.
3	Changing sentence structure	Changing the form of the SL but not the content of the SL in the TL.
4	Condensation	This is a subtitle translation strategy which is used to alleviate the problem of a limited number of subtitle lines on a screen.
5	Corpus	Corpus is a collection of natural language information, either written or spoken, that is saved on a computer and used to study how language is used.
6	Corpus-based method	It is an approach that relies on an underlying corpus to serve as a repository for linguistic information.
7	Corpus-based translation studies	CTS or CBTS is to uncover both the universal and particular characteristics by combining theoretical frameworks and hypotheses, diverse data, innovative descriptive categories, and a rigorous, flexible methodology.
8	Corpus linguistics	CL is an approach that combines computer-based empirical assessments (both quantitative and qualitative) of language use through the use of huge, electronically available collections of naturally occurring spoken and written texts, referred as corpora.
9	Critical discourse analysis	CDA is a qualitative analytical method for critically characterising, interpreting, and explaining how discourse build, perpetuate, and legitimate social inequalities.
10	Culture-bound words	Culture-bound terms are those that have cultural connotations and have been adopted from another language because of linguistic interaction.
11	Cultural-specific items	CSIs are those that are unique to a certain culture. These principles may be applied to a variety of sectors, including plants, animals, food, law and religion.
12	Deletion	It refers to cases in which the ST elements are removed from the TT.
13	Descriptive translation studies	It is used to present faithfully the values, the hegemonic views or ideological positions of the TT participants.
14	Division	Translation strategy in which a long sentence is divided into several small parts, each of which has a connected meaning, is used.
15	Division and inversion	It is a compound translation strategy combining No. 14 and No. 25 to deal with the syntactical level.
16	Division and literal translation	A combined translation strategy (No. 14 and No. 28) to solve the syntactical level of geotourism translation.
17	Division and shift translation	Shift is a translation strategy applying change of word/s, sentence structure or voice of the ST to fit the TL. Division and shift is a compound translation strategy combining shift and No. 14.
18	Domestication	It is a strategy for tightly conforming text the culture of the TL, which may result in the loss information from the ST.
19	Extralinguistics	ECRs are expressions that refer to entities outside language, such as names of people, places, institutions, food and

(continued on next page)

(continued)

NO.	Linguistic Term	Comments
	cultural-bound references	customs, which a person may not know, even if s/he knows the language in question.
20	Free translation	It generates the TT without the style, form, or content of the ST.
21	Foreignisation	It is a strategy for keeping information from the ST that entails intentionally violating the TL's rules in order to maintain its meaning.
22	Functional equivalents	The translator understands the notion in the source language and finds a means to communicate the same concept in the target language that conveys the same meaning and intent as the original.
23	Generalisation	Translation strategy in which a translator replaces a specific term in the TL with a more generic or neutral phrase.
24	Idiomatic translation	It faithfully reproduces the 'message' of the ST, but tends to skew subtleties of meaning by favoring colloquialisms and idioms in place where they do not appear in the ST.
25	Inversion	It refers to the inevitable or necessary change in a sentence according to the usage of the TL.
26	Language pair	It is a term that refers to the process of translating one language into another. For example, if a translator is rendering from Chinese to English, the translation pair is Chinese-English.
27	Linguistic features	Linguistic features in translation include register, lexical aspect, syntactical aspect, cultural proverbs, and technical jargon.
28	Literal translation	This translation converts the SL grammar to its closest TL equivalent, but the lexical terms are translated separately.
29	Naturalisation	It is employed when cultural characteristics unique to the culture of the ST are substituted with close equivalences in the destination culture.
30	Oblique translation	The strategy is employed when the structural or conceptual aspects of the source language cannot be translated directly without distorting the content or disturbing the destination language's grammatical and stylistic characteristics.
31	Omission	It refers to the acting of omitting a word and words from the SLT during translation.
32	Parallel aligned corpus data	A parallel corpus is a collection of translations of the same document into two or more languages that are at least sentence-level aligned.
33	Periphrases strategy	It is circumlocution, or extended rewording of an object through one of its aspects: Green continent = Australia.
34	Polysystem theory	A theory that explains how literary systems behave and evolve.
35	Skopos theory	A translation theory which represents 'the idea that translating and interpreting should primarily consider the function of both the ST and TT. It contains three rules: skopos rule, coherence rule and fidelity rule.
36	Synonymy	A strategy for overcoming cultural disparities between SL and TL.
38	Translation strategy	It aims to deliver effective meaning in the TT as translator considers whole ecology of the ST.
39	Translation theory	Translation theory is based on the recognition of a sound foundation for understanding how a language functions, as well as the realization of the fact that different languages have distinct forms. It instructs translators to maintain meaning by employing the language's most natural forms.
40	Transliteration	A special translation strategy in which symbols from one linguistic system are used to communicate letter symbols in another. For example, '山东' in Chinese is rendered into 'Shandong' in English.
41	Transliteration and free translation	During the translation process, these two methods (No. 40 and No. 20) are sometimes combined since they are both important for achieving a successful outcome.

Appendix B. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ijgeop.2022.02.001>.

References

- Abdelaal, N. M. (2019). Subtitling of culture-bound terms: Strategies and quality assessment. *Heliyon*, 5(4), Article e01411. <https://doi.org/10.1016/j.heliyon.2019.e01411>.
- Aixela, J. F. (1996). Culture-specific items in translation. In R. Alvarez, & C. Vidal (Eds.), *Translation, power, subversion* (pp. 52–78). Clevedon, England: Multilingual Matters.
- Alexander, S. (2020). *Tricks of the trade: Translation strategies in legal subtitling and assessment of legal subtitling*. (Master's thesis) Leiden University, Leiden, Holland.
- Baker, M. (1992). *In other words: A coursebook on translation*. London and New York: Routledge.
- Baker, M. (1993). Corpus linguistics and translation studies — Implications and applications. In M. Baker, G. Francis, & E. Tognini-Bonelli (Eds.), *Text and technology* (pp. 233–250). Amsterdam, Netherlands: John Benjamins Publishing Company.
- Baker, M. (1996). Corpus-based translation studies: The challenges that lie ahead. In H. Somers (Ed.), *Terminology, LSP and translation* (pp. 175–186). Amsterdam, Netherlands: John Benjamins Publishing Company.
- Baker, M. (1999). The role of corpora in investigating the linguistic behavior of professional translators. *International Journal of Corpus Linguistics*, 4(2), 1–18. <https://doi.org/10.1075/ijcl.4.2.05bak>.
- Biel, L. (2008). Legal terminology in translation practice: Dictionaries, googling or discussion forums. *SKASE Journal of Translation and Interpretation*, 3(1), 22–38.
- Briggs, A. (2020). *Stakeholder values and geoparks: A case study for a geopark in the Wheatbelt of Western Australia (Doctoral dissertation)*. Murdoch University, Perth.
- Chen, A., Lu, Y., & Ng, Y. (2015). *The principles of geotourism*. Heidelberg, Berlin.: Springer.
- Chen, A., Lu, Y., Zhang, E., & Tian, M. (2013). 《旅游地学大词典》 [A grand tourism earthscience dictionary]. Beijing, China: Science Press.
- Chen, A., Ng, Y., Zhang, E., & Tian, M. (2020). *Dictionary of geotourism*. Science Press/Springer: Science Press/Singapore.
- Chen, B. (2017). *A corpus-based study of Chinese and English translation of international economic law: An interdisciplinary study (Doctoral dissertation)*. University of Stirling, United Kingdom.
- Chen, J. (2016). Three-dimensional transformation of public signs translation: A case study of Hengdian film studio. *Shanghai Journal of Translators*(1), 38–42. <https://doi.org/10.3969/j.issn.1672-9358.2016.01.007>.
- Chen, S. (2014). The paradox of eco-translatology. *Chinese Translators Journal*, 2, 68–73.
- Chen, W. (2020). *A comparative study on the allusion translation in two English versions of the peony Pavilion from Eco-translatology (Master's thesis)*. North China Electric Power University, Beijing, China.
- Civil Engineering and Development Department of Hong Kong (2007a). Hong Kong geology guidebook. Retrieved from <https://www.cedd.gov.hk/eng/publications/geo/hong-kong-geology-guide-book/index.html>.
- Civil Engineering and Development Department of Hong Kong (2007b). 《香港地質考察指引》 [Hong Kong Geology Guidebook]. Retrieved from https://www.cedd.gov.hk/filemanager/tc/content_429/hkgeologyguidebook_c.pdf.

- Coghlan, A. (2021). Can ecotourism interpretation influence reef protective behaviours? Findings from a quasi-experimental field study involving a virtual reality game. *Journal of Ecotourism*. <https://doi.org/10.1080/14724049.2021.1971240>.
- Cowan, S. E. (2019). Cultural localisation as a strategy to preserve the persuasive function in the translation of tourism websites from French into English. *The Journal of Internationalization and Localization*, 6(2), 131–152. <https://doi.org/10.1075/jial.20001.cow>.
- Cronon, M. (2015). The moveable feast: Translation, ecology and food. *Translator*, 3, 244–256. <https://doi.org/10.1080/13556509.2015.1103094>.
- Darwin, C. (1859). *On the origin of species by means of natural selection, or the preservation of favoured races in the struggle for life*. Retrieved from https://www.vliz.be/docs/Zeecijfers/Origin_of_Species.pdf.
- Deng, K., & Meng, F. (2012). Eco-translatological view of Wang Zuoliang's translation thoughts. *Contemporary Foreign Languages Studies*(6), 55–58. <https://doi.org/10.3969/j.issn.1674-8921.a0405>.
- Deng, Y. (2012). A study on the project-based learning and instruction mode of MTI interpretation under the framework of eco-translatology. *Computer-Assisted Foreign Language Education in China*, 9, 77–80. <https://doi.org/10.3969/j.issn.1001-5795.2012.05.013>.
- Ding, M. (2018). *A study on C-E translation of public signs in scenic spots of Nanning from the perspective of eco-translatology* (Master's thesis). Guangxi Normal University, Guilin, China.
- Dowling, R. (2013). Global geotourism: An emerging form of sustainable tourism. *Czech Journal of Tourism*, 2(2), 59–79. <https://doi.org/10.2478/cjot-2013-0004>.
- Dowling, R. (2015). Geotourism's contribution to sustainable tourism. In M. Hughes, D. Weaver, & C. Pforr (Eds.), *The practice of sustainable tourism* (pp. 207–227). London; New York: Routledge.
- Freixa, J. (2006). Causes of denominative variation in terminology: A typology proposal. *Terminology*, 12(1), 51–77. <https://doi.org/10.1075/term.12.1.04fre>.
- Fu, L. (1957). *My experience in translation*. Wen Yi Bao, 10.
- Fuentes-Luque, A. (2016). An approach to analysing the quality of menu translations in southern Spain restaurants. *Journal of Multilingual and Multicultural Development*, 38(2), 177–188. <https://doi.org/10.1080/01434632.2016.1187154>.
- Geological Society of Australia (2015). Geotourism and geotrails. Retrieved from <https://www.gsa.org.au/Public/Geotourism/Public/Geotourism/Geotourism%20and%20Geotrails.aspx?hkey=754eb036-9266-452e-95b8-e135a1db04d1>.
- Gong, F. (2011). *A general introduction to translation studies*. Beijing: Higher Education Press.
- Gottlieb, H. (1992). Subtitling. In M. Baker (Ed.), *Routledge encyclopedia of translation studies* (pp. 244–248). London and New York: Routledge.
- Gulas, O., Vorwagner, E. M., & Pašková, M. (2020). From the Orchard to the Full Bottle: One of the Geostories of the Nature & Geopark Styrian Eisenwurzen. *Czech Journal of Tourism*, 8(2), 143–155.
- Guo, Y. (2011). E-C translation of news from the perspective of eco-translatology. *Chinese Science and Technology Translators Journal*, 24(4), 36–38. <https://doi.org/10.3969/j.issn.1002-0489.2011.04.010>.
- Halliday, M. A. K. (1985). Part A. In M. A. K. Halliday, & R. Hasan (Eds.), *Language, context, and text: Aspects of language in a social-semiotic perspective* (pp. 24–43). Oxford/Geelong: OUP/Deakin University Press.
- Hose, T. A. (1995). Selling the story of Britain's stone. *Environmental Interpretation*, 10(2), 16–17.
- Hose, T. A. (1996). Geotourism, or can tourists become casual rock hounds? In M. Bennett, P. L. Doyle, & C. Prosser (Eds.), *Geology on your doorstep* (pp. 207–228). The Geological Society.
- Hose, T. A. (2020). Modern geotourism's UK antecedents. In R. B. Singh, D. Y. Wei, & S. Anand (Eds.), *Global geographical heritage, geoparks and geotourism* (pp. 307–342). Singapore: Springer.
- House, J. (2011). Using translation and parallel text corpora to investigate the influence of global English on textual norms in other language. In A. Kruger, K. Wallmach, & J. Munday (Eds.), *Corpus-based translation studies: Research and applications*. London and New York City: Continuum International Publishing Group.
- Hu, G. (2001, December). *Tentative proposition of a theory of adaptation and selection*. Hong Kong, China: Article presented at the FIT-third Asian Translators' Forum.
- Hu, G. (2003). Translation as adaptation and selection. *Perspectives*, 11(4), 283–291. <https://doi.org/10.1080/0907676x.2003.9961481>.
- Hu, G. (2004). *An approach to translation as adaptation and selection*. Wuhan: Hubei Education Press.
- Hu, G. (2006). Exemplifying the translation principle and methods of the 'approach to translation as adaptation and selection'. *Foreign Languages and Their Teaching*, 3, 49–52.
- Hu, G. (2008). Eco-translatology: A primer. *Chinese Translators Journal*, 29(6), 11–15.
- Hu, G. (2009). On Fu Lei's translation philosophy: An eco-translatological perspective. *Journal of Foreign Languages*, 32(2), 47–53.
- Hu, G. (2010). Eco-translatology: Backgrounds and bases for its development. *Foreign Languages Research*, 4, 62–67. <https://doi.org/10.3969/j.issn.1005-7242.2010.04.011>.
- Hu, G. (2011). A response to the problem of 'translator centered'. *Shanghai Journal of Translators*(4), 7–9. <https://doi.org/10.3969/j.issn.1672-9358.2011.04.002>.
- Hu, G. (2014). The response and suggestion to the discussion of several problems in eco-translatology. *Chinese Translators Journal*, 35(6), 86–89.
- Hu, G. (2017). Some applied studies from the perspective of eco-translatology. *Shanghai Journal of Translators*, 5, 1–7.
- Huang, Z. (2009). Adaptation and selection: The ideological roots of Yan Fu's translation. *Shanghai Journal of Translators*, 4, 7–11. <https://doi.org/10.3969/j.issn.1672-9358.2009.04.002>.
- Jiang, X. (2009). Translator's selective adaptation and adaptive selection - On three English versions of the peony pavilion. *Shanghai Journal of Translators*, 4, 11–15. <https://doi.org/10.3969/j.issn.1672-9358.2009.04.003>.
- Jiao, W. (2010). Yan Fu's translation of evolution and ethics revisited: A translational perspective. *Shanghai Journal of Translators*, 4, 6–10. <https://doi.org/10.3969/j.issn.1672-9358.2010.04.002>.
- Joyce, E. (2006). Geomorphological sites and the new geotourism in Australia. *Geological Society of Australia, Melbourne*, 2016, 1–4.
- Kranich, S., House, J., & Becher, V. (2012). Changing conventions in English-German translations of popular scientific texts. In K. G. Braunmüller, & C. Gabriel (Eds.), *Multilingual individuals and multilingual societies* (pp. 315–334). Amsterdam, Netherlands: John Benjamins Publishing Company.
- Laviosa, S. (2002). *Corpus-based translation studies: Theory, findings, application*. Amsterdam, Netherlands: Rodopi.
- Leng, Y. (2011). Is the translator the centre in eco-translation theory? *Shanghai Journal of Translators*(3), 71–73. <https://doi.org/10.3969/j.issn.1672-9358.2011.03.018>.
- Li, G. (2012). *Construction of teaching material system for translation major under the framework of eco-translation theory*. Paper presented the Second International Symposium on Eco-translatology, Shanghai, China.
- Li, G. (2020). *Zhangjiajie UNESCO Global Geopark (China)*. Hunan, China: Hunan Cartography Publishing House.
- Li, Q., Wu, R. X., & Ng, Y. (2022). Developing Culturally Effective Strategies for Chinese to English Geotourism Translation by Corpus-Based Interdisciplinary Translation Analysis. *Geoheritage*, 14, 6.
- Li, S. (2019). A corpus-based multimodal approach to the translation of restaurant menus. *Perspectives*, 27(1), 1–19. <https://doi.org/10.1080/0907676x.2018.1483408>.
- Li, T., & Hu, K. (2021). *Reappraising self and others: A corpus-based study of Chinese political discourse in English translation*. Singapore: Springer.
- Li, T., & Pan, F. (2021). Reshaping China's image: A corpus-based analysis of the English translation of Chinese political discourse. *Perspectives*, 29(3), 354–370. <https://doi.org/10.1080/0907676x.2020.1727540>.
- Li, T., & Xu, F. (2018). Re-appraising self and other in the English translation of contemporary Chinese political discourse. *Discourse, Context and Media*, 25, 106–113. <https://doi.org/10.1016/j.dcm.2018.04.003>.
- Li, T., & Zhu, Y. (2020). How does China appraise self and others? A corpus-based analysis of Chinese political discourse. *Discourse and Society*, 31(2), 153–171. <https://doi.org/10.1177/0957926519880036>.
- Li, Y., & Huang, Z. (2005). Review of 'an approach to translation as adaptation and selection': A new theoretical construction. *Foreign Language Education*, 26(6), 95–96. <https://doi.org/10.3969/j.issn.1000-5544.2005.06.022>.
- Liu, A. (2011). On Xu Chi as a translator: An eco-translatological perspective to translator studies. *Foreign Languages in China*, 8(4), 95–100. <https://doi.org/10.3969/j.issn.1672-9382.2011.04.017>.
- Liu, H., & Li, Y. (2018). *Mount Taishan*. Jinan: Shandong People's Publishing House.
- Liu, Y. (2009). On the translation of metaphorical idioms in news report from the perspective of translation as adaptation and selection. *Shanghai Journal of Translators* (4), 16–19. <https://doi.org/10.3969/j.issn.1672-9358.2009.04.004>.

- Liu, Y., & Xu, J. (2004). Review of 'an approach to translation as adaptation and selection': A new book of translation studies with the spirit of exploration. *Chinese Translators Journal*, 25(6), 40–43.
- Magagnin, P. (2020). Translation studies and academic soft power: Some insights from eco-translatology. *Journal of Translation Studies*, 4(2), 93–116.
- McEnery, T., & Wilson, A. (1996). *Corpus linguistics*. Edinburgh, United Kingdom: Edinburgh University Press.
- McEnery, T., & Xiao, R. (2004). The Lancaster corpus of Mandarin Chinese. Retrieved from <https://www.lancaster.ac.uk/fass/projects/corpus/LCMC/default.htm>.
- McEntyre, M. (2009). *Caring for words in a culture of lies* (2nd). Grand Rapids, Michigan: Eerdmans Publishing.
- Medina, M. (2019). A corpus-based study of terminological variation in business incorporation documents from the United States and Peru. *Translation Spaces*, 8(1), 117–143. <https://doi.org/10.1075/ts.00015.mon>.
- National Geographic (2003). Geotourism. Retrieved from <https://www.nationalgeographic.com/maps/topic/geotourism>.
- Newmark, P. (1988). *A textbook of translation*. Hoboken, NJ: Prentice Hall.
- Newsome, D., & Dowling, R. K. (2010). Setting an agenda for geotourism. *Geotourism: The tourism of geology and landscape* (pp. 1–2). Goodfellow Publishers.
- Newsome, D., & Dowling, R. K. (2018). Chapter 17: Geoheritage and geotourism. In E. Reynard, & J. Brilha (Eds.), *Geoheritage: Assessment, protection and management* (pp. 305–321). Berlin, Germany: Springer Nature.
- Newsome, D., & Johnson, C. P. (2013). Potential geotourism and the prospect of raising awareness about geoheritage and environment on Mauritius. *Geoheritage*, 5(1), 1–9. <https://doi.org/10.1007/s12371-012-0070-4>.
- Ng, Y., & Li, X. C. (2021). *Timeless Oceania*. Beijing, China: CFTC Press Group.
- Novozhilova, A., Korolkova, S., Shovgenina, Y., & Shovgenin, A. (2018). Pragmatics of translating tourism discourse texts. *SHS Web of Conferences*, 50, 1–6. <https://doi.org/10.1051/shsconf/20185001121>.
- Pásková, M., Zelenka, J., Ogasawara, T., et al. (2021). The ABC Concept—Value added to the Earth heritage interpretation? *Geoheritage*, 13, 38. <https://doi.org/10.1007/s12371-021-00558-8>.
- Pavesi, M. (2018). Corpus-based audiovisual translation studies: Ample room for development. In L. Pérez-González (Ed.), *The Routledge handbook of audiovisual translation* (pp. 315). London and New York: Routledge.
- Pedersen, J. (2005). *How is culture rendered in subtitles? Paper presented at the EU High Level Scientific Conference Series, Saarbrücken, Germany*.
- Pederson, J. (2017). The FAR model: Assessing quality in interlingual subtitling. *The Journal of Specialised Translation*, 28, 210–229.
- Petrč, A., Mikišac, K., & Edmonds, I. (2019). Strategic approaches to menu translation analysis. *ToSEE-Tourism in Southern and Eastern Europe-Conference Proceedings*, 5, 689–703. <https://doi.org/10.20867/tosee.05.31>.
- Petticrew, M., & Roberts, H. (2008). *Systematic reviews in the social sciences: A practical guide*. Oxford, UK: Blackwell Publishing.
- Pym, A. (2004). *Localization from the perspective of translation studies: Overlaps in the digital divide. Paper presented at Scalla Conference, Kathmandu, Nepal*.
- Qiu, M. (1998). Culture and translation. *Journal of Foreign Languages*, 2, 19–22.
- Ranzato, I. (2016). *Translating culture specific references on television: The case of Dubbing*. London and New York: Routledge.
- Sandrelli, A. (2020). The translation of legal references in the Italian dubbing of a US TV Series: A corpus-based analysis. *Lingue e Linguaggi*, 40, 315–340. <https://doi.org/10.1285/i22390359v40p315>.
- Scott, C. (2015). Translating the nineteenth century: A poetics of eco-translatology. *Dix-Neuf*, 19(3), 285–302. <https://doi.org/10.1179/1478731815Z.00000000083>.
- Shu, H. (2010). An eco-translatology perspective to the translation of public signs — A case study of the slogan of Shanghai EXPO. *Shanghai Journal of Translators*, 2, 39–42. <https://doi.org/10.3969/j.issn.1672-9358.2010.02.009>.
- Shu, X. (2014). An empirical study of translation teaching mode from the perspective of eco-translatology. *Shanghai Journal of Translators*, 2, 75–79. <https://doi.org/10.3969/j.issn.1672-9358.2014.02.017>.
- Shuttleworth, M., & Cowie, M. (2014). *Dictionary of translation studies*. London and New York: Routledge.
- Soares, D. (2020). Asymmetrical relations in audiovisual translation in Brazil: A corpus-based investigation of fixed expressions. *Ilha do Desterro*, 73(1), 317–338. <https://doi.org/10.5007/2175-8026.2020v73n1p317>.
- Song, Z., & Hu, G. (2016). An eco-translatological interpretation of some key issues in translation studies. *Foreign Language Education*, 37(1), 107–110.
- Sulaiman, M. Z., & Wilson, R. (2018). Translating tourism promotional materials: A cultural-conceptual model. *Perspectives*, 26(5), 629–645. <https://doi.org/10.1080/0907676x.2018.1437193>.
- Sulaiman, M. Z., & Wilson, R. (2019). *Translation and tourism: Strategies for effective cross-cultural promotion*. Singapore: Springer.
- Sun, Y. (2009). Zhang Guroo and 'adaptation' and 'selection'. *Shanghai Journal of Translators*, 4, 1–6. <https://doi.org/10.3969/j.issn.1672-9358.2009.04.001>.
- Tao, H., & Xiao, R. (2012). The UCLA Chinese corpus (2nd Ed.). Retrieved from <https://www.lancaster.ac.uk/fass/projects/corpus/UCLA/>.
- Tao, H. X., & Richard (2007). The UCLA Chinese corpus (1st edition). Retrieved from <https://www.lancaster.ac.uk/fass/projects/corpus/UCLA/>.
- Tao, K. (2017). *Mount Yandangshan volcanic geology and landforms*. Nanjing, China: Jiangsu Phoenix Science and Technology Press.
- Tao, Y. (2012). The construction of translation textbooks in China: From the perspective of eco-translatology. *Foreign Language World*, 3, 81–88.
- Tong, X., & Huo, Y. (2010). On Eileen Chang's marginalized position as a translator: An eco-translatological perspective. *Foreign Languages and Their Teaching*, 6, 79–82.
- Toury, G. (1995). *Descriptive translation studies and beyond*. Amsterdam, Netherlands: John Benjamins Publishing Company.
- Van Dijk, T. A. (1998). *Ideology: A multidisciplinary approach*. New York, United States: SAGE Publications Ltd.
- Van Doorslaer, L. (2007). Risking conceptual maps. In Y. Gambier (Ed.), *The metalanguage of translation, special issue of target*. 19. (pp. 217–233). Amsterdam, Netherlands: John Benjamins Publishing Company.
- Venuti, L. (1995). *The translator's invisibility: A history of translation*. London and New York: Routledge.
- Vinay, J. P., & Darbelnet, J. (2004). A methodology for translation. In L. Venuti (Ed.), *The translation studies reader* (pp. 128–137). London and New York: Routledge.
- Wang, C., & Yang, Y. (2018). On the English translation of TCM hospital public signs from the perspective of eco-translatology. *Shanghai Journal of Translators*, 4, 39–43.
- Wang, D. (2019). *An eco-translatological study on the translation of culture-loaded words in journey to the west translated by W. J. F. Jenner* (Master's thesis). Northwestern University, Xian, China.
- Wang, H. (2011). A study on the core concepts of eco-translatology. *Shanghai Journal of Translators*, 4, 10–11. <https://doi.org/10.3969/j.issn.1672-9358>.
- Wang, H. (2020). Talent or strategies: Y. R. Chao's translation philosophy reflected in the Alice duology. *Journal of Translation Studies*, 4(2), 1–35. https://cup.cuhk.edu.hk/image/catalog/journal/jpreview/JTS4_2_1-35.pdf.
- Wang, K. (2012). *Exploration of corpus-based translation studies*. Shanghai: Shanghai Jiao Tong University Press.
- Wu, H. (2018). *Mount Danxiashan*. Beijing, China: China Photography Press.
- Xiao, R. (2004). Distribution of aspect markers in English and Chinese. In K. Wang (Ed.), *The development of the compilation and application of parallel corpora* (pp. 108–118). Beijing: Beijing Foreign Language Education and Research Press.
- Xiong, B. (2014). Conceptual confusion in translation studies — Taking 'translation strategies', 'translation methods' and 'translation techniques' as examples. *Chinese Translators Journal*, 3, 82–88.
- Yang, X. (2019). *On E-C translation of soft news from the perspective of eco-translatology: A case study of E-C soft news translation in global times* (Master's thesis). Central China Normal University, Wuhan, China.
- Yu, Z. (2017). Translation as adaptation and selection: A feminist case. *Perspectives*, 25(1), 49–65. <https://doi.org/10.1080/0907676x.2016.1197955>.
- Zhang, Y. (2018). *A comparative study of two English versions of the Analects from the perspective of eco-translatology* (Master's thesis). Xi'an International Studies University, Xian, China.
- Zhang, Y. (2021). English translation teaching theory and intercultural communication: Review of an integration and innovation: Modern English translation teaching and intercultural translation strategies. *Computer-Assisted Foreign Language Education in China*, 1, 112.
- Zhao, J. (2013). *A study of English translation of Hong Lou Meng from the approach of eco-translatology—Based on the versions of Yang Xianyi and David Hawkes* (Master's thesis). University of Guangxi, Guilin, China.
- Zheng, X. (2019). *A tentative research on C-E translation methods of public signs in frame of reference to eco-translatology: Taking the translation of Xi'an urban rail transit public signs as a case* (Master's thesis). Xi'an International Studies University, Xian, China.
- Zu, L. (2007). Eco-translation in the context of globalization. *Foreign Languages in China*, 4(6), 89–92. <https://doi.org/10.3969/j.issn.1672-9382.2008.06.018>.