

Analyzing research trends in localization

A comparative systematic review of journal articles in English and Chinese (2012–2023)

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This literature review paper examines articles on localization in translation studies published in English and Chinese journals from 2012 to 2023. We systematically reviewed a total of 147 publications consisting of 104 and 43 articles in English and Chinese respectively, integrating thematic analysis to examine their research types, areas, and methodologies. The findings reveal notable disparities between the English and Chinese journal papers regarding overall trends across these three dimensions. English papers are often characterized by preference for qualitative approaches and growing interest in multi-methods and mixed-methods designs, highlighting an increasing appreciation for unique elements in localized products. Chinese papers tend to be more general and place greater emphasis on localization training. Despite these variations, there has been a notable convergence towards descriptive approaches in recent studies regardless of the linguistic contexts, perhaps as a response to the evolving needs of the discipline as a whole. Our paper concludes by suggesting future directions for localization research, particularly in response to the dynamic landscape of game localization practices and the application of empirical methods.

Keywords: localization, new translation practices, literature review, methodology, translation studies

1. Introduction

The concept and practice of localization in the language services industry are shaped by advancements in internet technology and evolving societal needs. In academia, the study of localization has progressed, with translation scholars recognizing it as a unique discipline. Localization is a comprehensive process that

adapts digital content not only linguistically but also culturally, technically, and functionally to make products feel native to specific target markets. This broadened scope for adaptation is essential for facilitating global cultural and commercial exchanges, ensuring that content resonates with local audiences. Localization services, introduced as an extension to translation practices since the 1980s (Gambier and Kasper 2021), necessitate collaborative efforts (Jiménez-Crespo 2020) and exhibit characteristics such as technology-driven multimodality, digitality, and commercial considerations.

Localization has been defined differently, depending on whether the perspective is from industry or academia. Industry definitions tend to emphasize the commercial aspects of localization, focusing on adapting digital products to suit the cultural and linguistic characteristics of specific local regions (Esselink 2000, 3). In contrast, academia, within the field of translation studies, considers localization as a “process” (Li 2012) involving the “adaptation” (Cronin 2003, 81; Pym 2004, 2010, 2017) of digital content (Schäler 2010) for “sale and use” (Dunne 2006, 4). Recent scholarship, particularly the work of Jiménez-Crespo (2019, 29), has broadened the understanding of localization by highlighting elements such as adaptation, collaboration, multimodality, and user-centred features that are sensitive to geographical or cultural contexts, thus extending beyond the traditional confines of translation. Significantly, both academia and industry acknowledge the socio-economic perspective of localization as an “umbrella term,” as described by Jiménez-Crespo (2019, 27). This term highlights the dynamic interactions among localizers, language services providers, target users, and technology through digital content in the real world. In this review paper, we adopt Jiménez-Crespo’s (2016, 2019) conceptual framework for the prototypical features of localization, in conjunction with the definition of “digital content” formulated by Ryan, Anastasiou, and Cleary (2017, 12) as “content stored on hard drives or external storage media, published as a computer file or online, and accessed via a hardware device such as a computer, games console or mobile phone.” Within the scope of translation studies, localization research encompasses rigorous investigation into the methodologies, training, theoretical foundations, and relevant processes and technologies involved in adapting products across a variety of formats and genres to suit specific cultural and linguistic contexts and the required technological aspects of user environments.

In recent years, we have witnessed a growing demand for localized products, including digital games, multimedia, websites, and software, that are aimed at providing a satisfying experience for global customers. Annual reports from Common Sense Advisory Research (CSA Research 2021) have indicated that localization

engineering¹ has played a significant role in the overall output value of global language services, contributing around 8.6% in 2019. Despite the flourishing development of the localization industry and calls for scholarly attention to localization research (Jiménez-Crespo 2013; O'Hagan and Mangiron 2013; Cui 2013), there has been a lack of systematic academic research on various localization practices and the training of competent localizers.

Some scholars have compared the characteristics of localization research published in English and Chinese. For instance, Xu and Wu (2019) examined 127 research articles from Web of Science (WoS) and the China National Knowledge Infrastructure (CNKI), a database of Chinese language scholarly publications covering the period from 2005 to 2016. Liu and Ma (2020) conducted an analysis of papers on localization, which covers a wide range of languages and document types, from 1987 to 2016. They examined a total of 374 papers sourced from the John Benjamins Translation Studies Bibliography (TSB), an online database meticulously updated by Gambier and Doorslaer. These studies have largely relied on thematic analysis based on abstracts and keywords, as well as computational methods using software programs like CiteSpace (Xu and Wu 2019) and CLUTO² (Liu and Ma 2020), which cluster and visualize the citation networks and research trends. Previous literature reviews have primarily focused on research findings before 2016 or concentrated on specific areas such as game localization (Mangiron 2017) or web localization (Jiménez-Crespo 2013). However, to gain a comprehensive understanding of the changes in the field, it is essential to explore the relationship between localization research and the dynamic language service industry, particularly considering the impact of political and economic uncertainties on markets since 2016. Therefore, we are interested in potential differences in research types, areas, and methods in localization research after 2016. These differences may be influenced by new technological advances, global language services markets, evolving research paradigms in translation studies, and changing national policies.

To address these concerns, we present our work as a follow-up study utilizing a more focused corpus from 2012 to 2023, with the aim of discerning descriptive and statistical differences in research types, areas, and methodologies between English and Chinese articles. The manual analysis is guided by the methodological framework outlined in Section 2. The descriptive and qualitative results are presented in Section 3, and future trends are discussed in Section 4.

1. Localization engineering, as defined in the 2017 annual report of the global language services market by CSA Research, refers to specialized software that aids in identifying and resolving localization issues, developing globally accessible products, and testing their efficiency and quality.

2. For more details of the software, refer to <http://glaros.dtc.umn.edu/gkhome/cluto/cluto/overview>

2. Methodology: Data collection and analysis

2.1 Search strategy

We examined key journal articles published in English and Chinese on localization and translation from three academic databases: the Core Collection of the WoS, the TSB, and the Chinese Social Sciences Citation Index (CSSCI) Collection in the CNKI. Given that the TSB encompasses both English and Chinese publications, we utilized this database as an auxiliary tool to capture those that might have been omitted in the other two.

First, we used the search string “locali* AND transl*” as the topic string and focused on the disciplines of linguistics, communication, behavioral sciences, and social sciences in the WoS. We checked the results from the WoS (168 English papers) to identify the top 14 journals with a focus on localization studies from 2012 up to October 1, 2023 (see Table 1). Then we retrieved the bibliometric data in Excel format from the WoS websites.

Table 1. The selected 14 English journals

No.	Title	Articles	%
1	<i>The Journal of Internationalization and Localization</i> *	46	29.11
2	<i>JoSTrans: The Journal of Specialised Translation</i>	11	6.96
3	<i>Perspectives</i>	10	6.33
4	<i>Babel</i>	6	3.80
5	<i>Localisation Focus — The International Journal of Localisation</i>	4	2.53
6	<i>The Translator</i>	4	2.53
7	<i>Translation Studies</i>	4	2.53
8	<i>Meta</i>	3	1.90
9	<i>The Interpreter and Translator Trainer</i>	3	1.90
10	<i>Target</i>	3	1.90
11	<i>Games and Culture</i>	3	1.90
12	<i>Translation Spaces</i>	3	1.90
13	<i>Across Languages and Cultures</i>	2	1.27
14	<i>International Journal of Communication</i>	2	1.27
15	Others (41 journals)**	54	34.18

* This journal has changed its name to *Digital Translation: International Journal of Translation and Localization (DT)* as of Vol. 10, Issue 1, in 2023. We double-checked and included the 2023 publications on the DT journal website on the John Benjamins e-Platform (<https://www.jbe-platform.com/>).

** Refer to the Open Science Framework repository at <https://osf.io/6me4t/> for the full list of the English journals. Given that the top 12 English journals each published more than three papers, we selected two mainstream translation journals, *Across Languages and Cultures* and *International Journal of Communication*, from the 16 English journals that published two papers each.

Table 2. The 14 Chinese journals

No.	Title	Articles	%
1	中国翻译 [Chinese Translators Journal]	15	34.9
2	上海翻译 [Shanghai Journal of Translators]	11	25.6
3	中国外语 [Foreign Languages in China]	3	7.0
4	外语电化教学 [Technology Enhanced Foreign Language Education]	3	7.0
5	中国科技翻译 [Chinese Science & Technology Translators Journal]	2	4.7
6	外语教学 [Foreign Language Education]	1	2.3
7	外语学刊 [Foreign Language Research]	1	2.3
8	外语教育研究前沿 [Foreign Language Education in China]	1	2.3
9	外语研究 [Foreign Languages Research]	1	2.3
10	外国语 [Journal of Foreign Languages]	1	2.3
11	工业工程与管理 [Industrial Engineering and Management]	1	2.3
12	现代传播(中国传媒大学学报) [Modern Communication (Journal of Communication University of China)]	1	2.3
13	语言文字应用 [Applied Linguistics]	1	2.3
14	东北农业大学学报 [Journal of Northeast Agricultural University]	1	2.3

Next, using the Chinese search terms “本地化 [localization]” and “翻译 [translation]” in the titles, abstracts, keywords, and full texts, we retrieved 80 results for Chinese papers. We then narrowed down the results to 14 key journals, including 11 linguistics-related core journals that belong to either CSSCI (2021–2022 edition) source journals, CSSCI extended journals,³ or CJC (The Core Journals of China, 2020 edition)⁴ journals. We also included three additional non-linguistics CSSCI journals, namely *Industrial Engineering and Management* [工业工程与管理], *Modern Communication* [现代传播], *Journal of Northeast Agricultural University* [东北农业大学学报], that had published localization

3. CSSCI source and extended journals are both key journals assessed by the Institute for Chinese Social Sciences Research and Assessment at Nanjing University in China. CSSCI source journals refer to important journals across various disciplines and have been in use since 2000. Since 2007, the institute has developed an extended list of key journal publications (i.e. extended CSSCI journals) that undergo the same selection criteria as the CSSCI source journals. This effort aims to balance the representation among regions and disciplines in the development of academic journals. The institute assesses journal quality annually, and the lists of both CSSCI source and extended journals can change each year.

4. Compared with the Institute for Chinese Social Sciences Research and Assessment, Peking University Library announces a longer list of core journals every year. However, because CSSCI source and extended journals adopt more diverse and impactful quality criteria, they enjoy a higher reputation than CJC journals.

research, as well as the journal *Chinese Science & Technology Translators Journal*⁵ [中国科技翻译] which was an important journal that published technology-related contents, although it has not been considered a CSSCI journal or a CJC journal since 2020. The final list contains these 14 journals, as listed in Table 2, which are comparable to the number of English journals.

Additionally, we identified four more Chinese articles and 110 English papers by snowballing the reference list of identified articles and employing specific search strings related to areas of localization, such as “游戏/网页/网站/应用程序/软件/多媒体 [game/webpage/website/apps/software/multimedia]” AND “本地化 [localization]” in the CNKI, WoS, and TSB. We then reviewed the abstracts of all identified articles to determine their relevance to our study. Book reviews and articles that merely made passing references to localization in their full texts were excluded. Our coding (Section 2.2) and screening were conducted simultaneously. By integrating findings from all the three databases and reading the full texts of all the articles, our study is finally grounded in a total dataset of 147 articles, comprising 104 published in 14 English journals and 43 from 14 Chinese journals.

2.2 Coding scheme

We employed a coding scheme consisting of seven variables: publication year, paper language, research types, research areas, qualitative data collection method, quantitative data collection method, and data types. To enable meaningful comparisons with earlier reviews and reports on global localization services, including CSA Research's (2021) reports from 2017 to 2020, we categorized the *publication year* into two distinct groups: 2012 to 2017, and 2018 to 2023. This classification allows for a more balanced and detailed comparison of our findings against the background of previous studies and industry insights. The respective levels for each category are outlined in Table 3.

We categorized *Research type* into four sub-levels based on the methodological features, aligning with Gui and Ning's (1997) and Zhao's (2021) typology of article types in applied linguistics. Review papers and corpus studies were grouped as descriptive research. If researchers address specific localization problems without presenting descriptive, inferential data or theoretical reasoning, their work is classified as dialectical research. In the Chinese dataset, quite a number of publications are dialectical and reflective rather than empirical in nature.

5. Except for the *Chinese Science & Technology Translators Journal*, all the journals are CSSCI and CJC journals. We did not consider other non-CSSCI and non-CJC Chinese journals to ensure the quality of the articles under review.

Table 3. The coding scheme

Variables	Categories	Levels
Variable 1	Publication year	2012 to 2017, 2018 to 2023
Variable 2	Paper language	English, Chinese
Variable 3	Research type *	conceptual, dialectical, experimental, descriptive
Variable 4	Research area	software, multimedia, mobile apps, websites, games, others
Variable 5	Qualitative data collection method **	ethnography, documents, case study, interview, introspective methods, open-ended questionnaire, observation, combination, NA
Variable 6	Quantitative data collection method	closed-ended questionnaire, experiment, corpus, combination, NA
Variable 7	Data type	descriptive data, inferential data, textual data, combination, NA

Note. NA =not applicable, but we replaced it with “NO” in R to avoid any omission of data.

* It should be noted that categorizing the articles under review into distinct research types can be challenging due to the complex and multifaceted nature of research design. When an article is classified into a particular research type, it indicates that the decision was based on the most prominent research characteristic of the article.

** The categorization of data collection methods mentioned in Variable 5 and Variable 6 cannot definitively determine whether an article is quantitative or qualitative. Therefore, we need to examine the exact data types and research purposes to make this final determination.

Experimental research is characterized by the investigation of well-defined variables and their interrelationships within the context of localization, utilizing rigorous experimental or quasi-experimental methods. In our typology of research types, conceptual studies are considered non-empirical because they rarely depend on observational or experimental data. Dialectical studies, which involve the analysis and synthesis of ideas and arguments, are also typically classified as non-empirical. In contrast, experimental studies are empirical in nature as they rely on data collected through controlled experiments to understand phenomena. Descriptive studies can be classified as either empirical or non-empirical, depending on the research objectives and the methods employed in the articles. If a descriptive study primarily relies on observational data or other empirical evidence, it would be considered empirical; otherwise, it would be classified as non-empirical.

The classification of *Research area* considers both Jiménez-Crespo's (2011, 4) classification and the classification used in industry reports (detailed descriptions available in CSA Research 2021, 22–23). We combined the types identified in both classifications and added a category, *Others*, to accommodate any exceptions. Unlike the identification of research topics using software for cluster analysis

in existing reviews (Xu and Wu 2019; Liu and Ma 2020), we took a bottom-up approach to sort the topics (as outlined in Section 3.2). The classification and summary of research topics were carried out after completing the coding analysis of research areas.

The remaining three variables are categorized under *Research method*. Within this category, the qualitative data collection method is divided into nine subcategories, whereas the quantitative method encompasses five subcategories. This subcategorization of qualitative and quantitative methods draws from Dörnyei's (2007, 32–38) overview of the key characteristics of both approaches. Given that certain data collection or analysis methods do not directly clarify whether an article adopts a qualitative or quantitative approach, we derive conclusions by further analyzing the types of data used. Usually, closed-ended questionnaires are used to produce quantitative results,⁶ and open-ended questionnaires invite more individualized and qualitative responses from participants. Inferential data are primarily numerical and quantitative whereas qualitative research is often driven by “textual” (Dörnyei 2007, 38) data. A mixed-methods design combines both qualitative and quantitative methodologies, either during the data collection phase or in the analysis stage (Dörnyei 2007, 24). Conversely, a multi-methods design employs two or more methods within the same research paradigm, denoted as a *combination* in the data collection method subcategories, indicating the internal use of multiple methods.

2.3 Data analysis

Guided by the aim to mirror the volume of publications accurately, first, we delineated the overarching descriptive trends observed across the 147 papers.⁷ They were categorized according to research types, domains of inquiry, and methodological approaches over two distinct intervals: 2012 to 2017 and 2018 to 2023. This analysis was conducted using the `geom_bar` function to draw stacked bar charts, which visualize the total of grouped data points and the comparative sizes of English and Chinese papers regarding different research types, areas, and methods. Subsequently, we utilized the `facet_grid()` function in `ggplot2`, as described by Hadley (2016, 17), within the RStudio 2022 environment. This methodological approach was specifically chosen to enable a nuanced comparison of the distri-

6. While qualitative research typically relies on open-ended methods, there are instances where closed-ended questionnaires are used to collect information. For example, Carreira (2022, 498) states that her study adopts a “social qualitative approach” despite using a closed-ended questionnaire.

7. The coding results are available at <https://osf.io/6me4t/>

butions of multiple variables across the designated time periods. Following this quantitative assessment, a qualitative analysis was undertaken to examine the research themes within the five delineated areas of study. This qualitative examination was intended to highlight the differences in research foci between English and Chinese publications, thereby enriching our understanding of the broader landscape of localization research beyond English publications alone.

3. Results: Recent development of translation and localization (2012–2023)

3.1 General trends in research types, research areas, and research methods

The body of work published in English between 2012 and 2023 exhibits notable and steady increases in publication volume. This growth is accompanied by increased diversity and complexity in the themes explored. Conversely, the number of papers published in Chinese journals shows a decline over the same period. These dynamics are clearly illustrated in the overall trend shown in Figure 1 and are further delineated across the distributions of research types (Figure 2), research areas (Figure 3), and research methods (Figure 4).

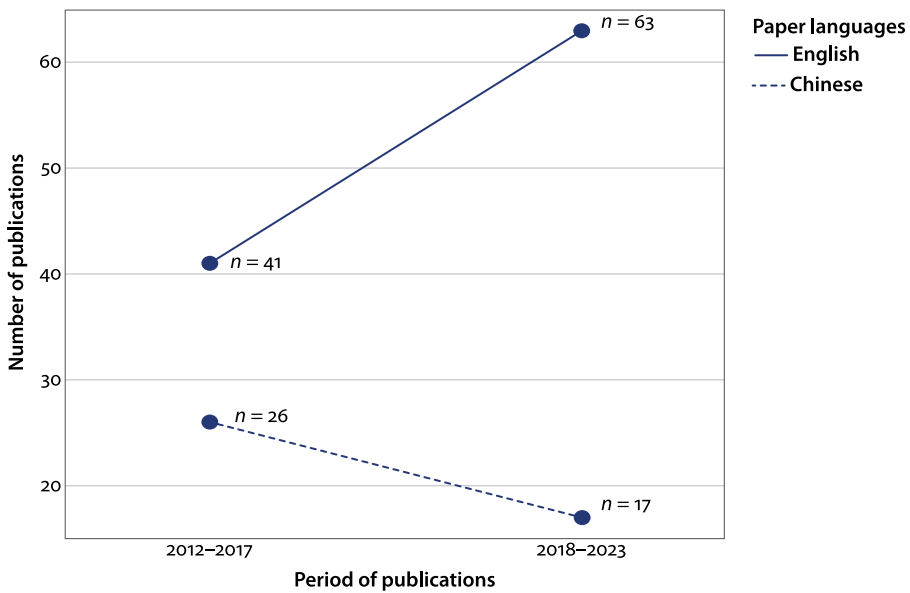


Figure 1. The comparative trend of English and Chinese publications (2012–2023)

3.1.1 Research types

The majority of English articles on localization were descriptive (87.50%, $n = 91$) after 2011, aligning with Jiménez-Crespo's observation (2020). Of the 104 English articles reviewed, only three quasi-experimental studies (Bowker and Blain 2022; Péron and Vázquez 2014; Sánchez-Ramos 2019) conducted between 2012 and 2023 focused specifically on online collaboration through localization tools, significantly influenced by advancements in machine translation technology.

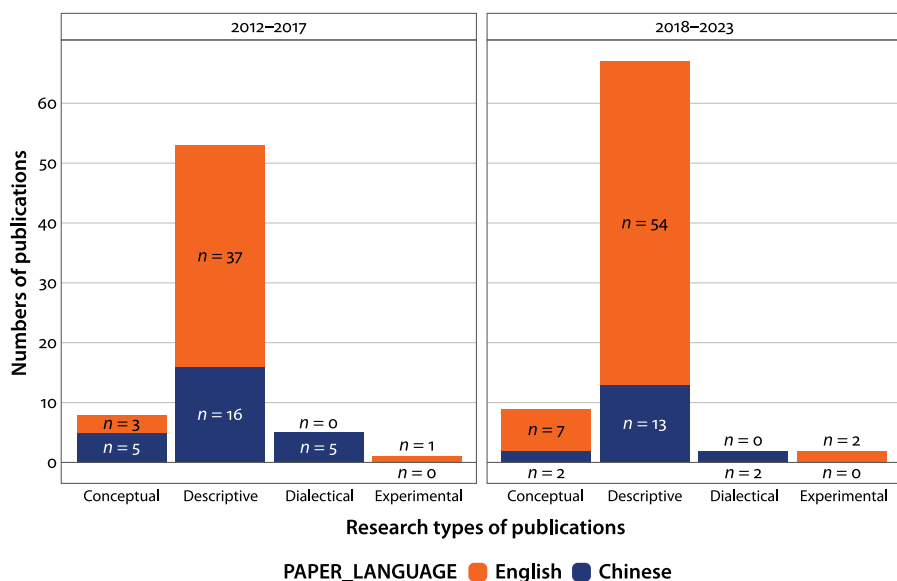


Figure 2. The trend of research types (2012–2023)⁸

Localization research in China has been considered in its early developmental phase (Cui 2013, 2015b; Liu and Ma 2020). Within this overall observation, the present study finds that 67.44% ($n = 29$) of the Chinese papers published from 2012 to 2017 ($n = 16$) and from 2018 to 2023 ($n = 13$) were predominantly descriptive in nature, and 32.56% ($n = 14$) were conceptual and dialectical in their orientation. Furthermore, no experimental research has been identified among the Chinese papers.

8. The upper data values represent the number of English publications, while the lower data values represent the number of Chinese publications.

3.1.2 Research areas

Among the English articles (see Figure 3), prior to 2018, there was no significant difference in the volume of English papers on game localization (12.50%, $n=13$) and website localization (9.62%, $n=10$). However, the number of papers on website localization (6.73%, $n=7$) in the subsequent period from 2018 to 2023 indicates a moderate decline in research interest in this area. Contrary to initial expectations, software localization currently represents the least explored domain within the contemporary research agenda in both English and Chinese papers. This finding is particularly notable given the historical significance of software localization, which has traditionally accounted for a substantial proportion of the output value in the localization engineering sector, as corroborated by language services revenue statistics between 2016 and 2019 (CSA Research 2021,183). Since 2018, against the background of the era of artificial intelligence (AI), technological developments such as neural machine translation (Esselink 2022; O'Brien and Rossetti 2021), along with the socio-economic impact of the COVID-19 pandemic (Kockaert 2022; O'Hagan, McDonough Dolmaya, and Kockaert 2019), have significantly shaped the landscape of localization practices (Massidda 2023) and research, as noted by Gambier and Kasperę (2021). These factors have introduced new dimensions to the study of localization. Among various types of localization, game localization (24.04%, $n=25$) and multimedia localization (13.46%, $n=14$; compared with 3.85% from 2012 to 2017) have garnered increasing academic attention, with a consistent increase in the exploration of these two types of localization observed, particularly in the second period (2018–2023).

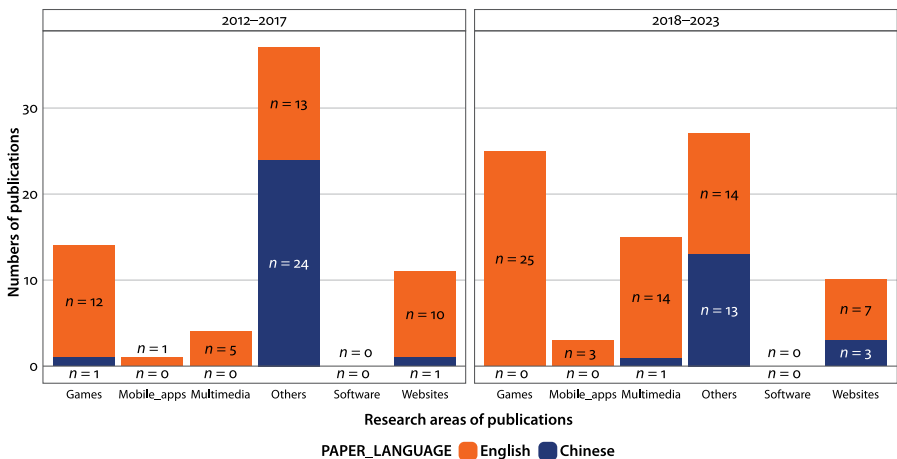


Figure 3. The trend of research areas (2012–2023)

Our analysis reveals that Chinese publications do not always prioritize any specific form of localization, as evidenced by the prevalence of a generic “Others” category (86.05%, $n=37$) within their research. This category often includes a very general introduction to localization education and training (see Section 3.2.2). Moreover, there is a noticeably limited focus on game localization within these journal articles. However, the limited volume of Chinese publications in game localization does not mean this area has received declining attention. From 2018 to 2023, three out of 25 English game localization publications (12%) were by Chinese scholars, compared to one out of 13 (7.69%) from 2012 to 2017, indicating a slight growing interest among Chinese scholars on game localization. For example, Wu and Chen (2020) have investigated the expectations and preferences regarding games localized from Chinese, using English as a lingua franca in the relatively uncharted territory of Southeast Asian localization markets.

3.1.3 Research methods

Based on the results, we noted a strong tendency in English papers to utilize qualitative data for elucidating localization phenomena (see Figure 4). This aligns with Mangiron’s (2017) observation of the trend within game localization research. Specifically, our analysis shows that most research in the 37 English game localization papers from 2012 to 2017 is predominantly qualitative (27.03%, $n=10$), and this trend continues from 2018 to 2023 (29.73%, $n=11$). In parallel, the period from 2018 to 2023 saw an increase in the adoption of multi-methods and mixed-methods designs within the localization research published in English.

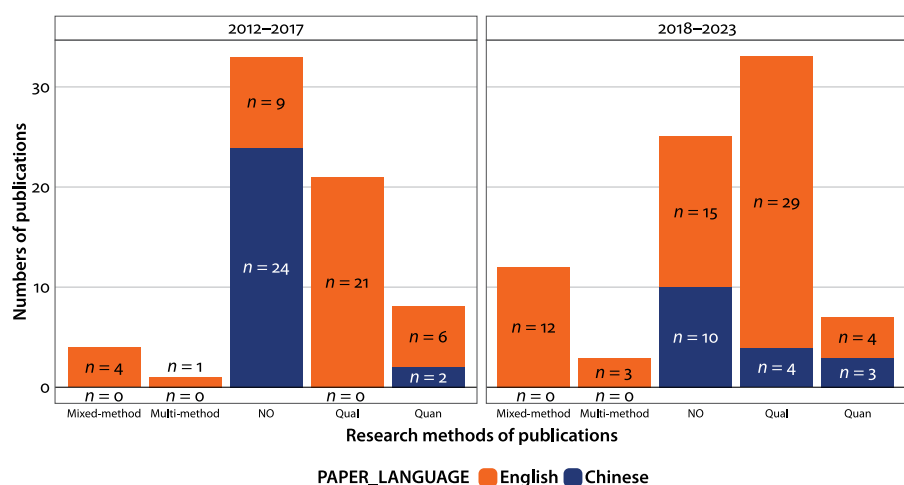


Figure 4. The trend of methodology (2012–2023)

Among the English papers, there was a noticeable increase in empirical research (54.81%, $n=57$) from 2018 to 2023 compared to those (30.77%, $n=32$) published before 2018. From 2012 to 2017 methodologies such as case studies, open-ended questionnaires, document analyses, and interviews were used to conduct studies which were predominately descriptive in nature. It is particularly apparent that English articles from 2012 to 2023 have employed case studies (47.12%, $n=49$). In terms of data analysis, these studies utilize descriptive data (40.82%, $n=20$), textual data (28.57%, $n=14$), or a combination of both (30.61%, $n=15$). This aligns with the findings of Xu and Wu (2019), who reviewed 78 English localization papers from 2005 to 2016. Moreover, closed-ended, and open-ended questionnaires (15.38%, $n=16$) are also used to gather insights into individuals' perceptions and preferences regarding localization practices. No study employed multiple quantitative methods, while ten papers (9.62%) applied a single quantitative method in their research, such as Gaspari, Almaghout, and Doherty (2015).

In the case of the 43 Chinese articles, a majority of Chinese papers (69.77%, $n=30$) lacked diverse data types, likely indicating a lag in the development of research on localization and a limited application of empirical methods in Chinese translation studies. Only five articles (11.63%) employed questionnaires, hinting at a budding interest in more systematic empirical research. Additionally, four articles (9.30%) were case studies, yet they did not offer empirical data. Moreover, none of the studies used multiple or mixed-methods approaches. These findings are consistent with Xu and Wu's (2019) review of Chinese localization research spanning from 2005 to 2016. The predominant trend in these papers was the use of descriptive data in the form of frequency counts or percentages, to report on desired localization services from the viewpoint of Chinese businesses (e.g. Cui and Liu 2016). Only one study (Yu, Wang, and Wang, 2014) used more advanced inferential statistics to assess the difficulty of a specific technology certification exam for localization professionals.

Among the 104 English papers, 47.12% ($n=49$) explicitly utilized theories or models. Of those, 22.45% ($n=11$) employed functional approaches, with Nord's (1991, 1997) theory being the most frequent (e.g. Morón & Calvo, 2018). Translation competence models (4.08%, $n=2$) were also used to help describe skills and competence in designing new pedagogical modules. Additionally, other descriptive frameworks were utilized for specific purposes. For example, Jooyaeian and Khoshsaligheh (2022) adopted Pym's (2016) eight-term typology of translation solutions to align with their study materials in Persian. Theories from narrative studies (Boéri & Giustini 2023) and media studies (Kiran, 2023) were also been employed. These instances demonstrate the utilization of specific theoretical approaches, providing a solid basis for their analysis and findings. Most Chinese

papers lacked explicit mention of the theoretical bases they employed, primarily focusing on general descriptions of practical aspects related to localized products. Exceptions include Li (2012), who utilized Kuhn's (1962) theory of paradigm to elucidate the norms observed in localization practice.

3.2 Research topics

After reviewing the literature, we categorized all the papers into five key thematic areas: localization practices, localization training, needs analysis on localization, conceptual research on localization, and localization and technology. The qualitative analysis is closely integrated with the six distinct research categories presented in Table 3, namely software, multimedia, mobile applications, websites, games, and other forms of localization practices.

3.2.1 *Localization practices*

The exploration of strategies and solutions in localization practice remains a significant area of interest among international scholars. Recent research has shed light on previously under-explored aspects, such as indirect translation and transcreation. For example, O'Hagan (2022) conducted a case study on the motivation, challenges, and implications of using indirect translation in localizing video games from Japanese to other European languages, with English serving as the pivot language in the localization process. Besides, revisiting the concept "transcreation" (see Mangiron and O'Hagan 2006 for an early example of the concept in game localization) also highlights the dynamic nature of localization practice and emphasizes the need for innovative approaches to effectively connect with diverse audiences while preserving cultural nuances. This term holds significant importance in ensuring that social and cultural experiences resonate with target audiences through creative means "within a marketing/advertising framework" (Carreira 2022, 512), and involves maintaining local cultural elements while incorporating creative adaptations throughout the specific language service processes (Risku, Pichler, and Wieser 2017).

The discussion on various types and implementation of strategies applied to the localization process is a frequent subject of study, often with a focus on adjusting cultural factors in game localization. McLoughlin (2022) argued that translators play a vital role in expanding the artistic "afterlife" (Benjamin 1996, 254) of video games, using Jeremy Blaustein's creative translation of the Japanese game *Metal Gear Solid* (Konami, 1998) as a case study. Jooyaeian and Khoshsaligheh (2022) examined translation solutions and errors in a corpus of four English video games and their localized versions in Persian. Although no errors were found related to culture-specific references, cultural correspondence was the least

frequent translation solution, likely indicating inadequate cultural awareness of translators because of “lack of access to content” (ibid. 2022, 18). The localization of comic books is another area that has garnered scholarly attention (Borodo 2018). Đorđević and Stamenković (2021) explored the role of multimodality in helping students recognize errors during the localization of animated films from English to Serbian.

Several studies have examined the factors that impact specific localization practices. Zhang (2013) highlighted the influence of the censorship system on the game localization industry in China, shedding light on how regulatory measures shape localization practices. Martin (2019) conducted an analysis of localization strategies in 385 French-language magazine advertisements, revealing a strong correlation between culturally specific requirements and the translation strategies employed. Moreover, a significant trend is the evolving role of localizers, marked by a notable increase in fan and volunteer translators (Izwaini 2014; O’Hagan 2017).

3.2.2 *Localization training*

An increasingly significant area of discussion in localization research pertains to the design of training for localizers. The importance of “professional localization training and education” (Folaron 2006, 195) has been recognized by scholars who have approached localization training by incorporating it as part of other courses or modules (Rodríguez-Castro 2018; Morón and Calvo 2018). Some studies have specifically focused on training programmes for particular professional localizers. For example, Mangiron (2021) presented a didactic case study on competence-based distance education for training game translators/localizers in audiovisual translation at the Universitat Autònoma de Barcelona. Training in transcreation skills has also been emphasized (Morón and Calvo 2018), highlighting the recognition of the importance of creative adaptation in localization training programmes.

Curriculum design for training localizers has been a frequent topic of discussion in Chinese articles on localization research. More than a third of Chinese papers (34.89%, $n=15$) focused on dialectical and general introduction of localization curriculum for Bachelor of Translation and Interpreting (BTI) and Master of Translation and Interpreting (MTI) programmes in China. They are designed to develop professionals across various domains of translation and interpreting. Until 2013, discussions on localization training were generally broad, focusing predominantly on MTI students. However, from 2015 onwards, there has been a notable shift towards either empirical or descriptive studies on particular facets of localization practices, such as project management (Cui 2015a). Concurrently, descriptive modules on localization have been incorporated into the “翻译+技术

[Translation plus Technology]” curriculum for BTI students who will have systematic courses for language skills, translation practice, programming skills and content management technology, and localization (Han and Liu 2020). These shifts underscore the dynamic progression of localization training in China, marked by a heightened emphasis on empirical research and the integration of specialized modules within translation education programmes.

In recent years, there has been a growing scholarly focus on competence-based curriculum design in both English and Chinese publications. For example, one project proposed by Nitzke, Tardel, and Hansen-Schirra (2019) aimed to enhance students’ digital competences by integrating relevant skills into their courses. This highlights the importance of incorporating technological proficiency into the curriculum to meet the demands of the evolving localization field. Another area of research that has garnered attention is the enhancement of high-order thinking in the localization module of translation technology curricula (Cheng & Wei 2021), yet the availability of empirical evidence in this domain is currently limited. These recent developments in curriculum design for educational programmes reflect a convergence between academic research on translation competence frameworks (e.g. EMT Expert Group 2022; PACTE Group et al. 2020) and the practical demands of the localization industry. The emphasis on competence-based approaches signifies an increasing recognition of the importance of preparing students with the essential skills needed to succeed in the dynamic and evolving field of localization and translation.

3.2.3 *Needs analysis on localization*

A shift in attitude has been observed in recent studies that focus on users’ perceptions and expectations regarding the quality and features of localized products in market circulation and educational settings. Many of these studies have employed surveys or interviews to gather data. Recognizing the prospect of Chinese as a potential lingua franca in Asian game markets, Cui and Liu (2016) investigated the needs of the language services industry in relation to different areas of localization, including games, websites, and software. Risku et al. (2017) interviewed 13 technical clients of an Austrian translation agency to survey their expectations regarding marketing translation or transcreation. One of the surprising results was that clients did not expect the creative roles of translators, yet they would not refuse translators’ suggestions for the adaptation of artwork. These studies contribute to a deeper understanding of users’ expectations, motivations, and the influence of various factors on the localization process. By integrating user perspectives, both researchers and practitioners are better positioned to improve the quality and efficacy of localized products and services.

3.2.4 *Conceptual research on localization*

Even though theories or theoretical models have been often used in the articles under review, there have been a limited number of conceptual, epistemological, and methodological studies specifically focused on localization research. Li (2012) conducted an analysis of the academic discourse surrounding localization, providing insights into the conceptual framework of the field. Borodo (2018) presented a general overview of the concepts of translation and localization. Wang and Lu (2015) attempted to categorize translation norms within the field of localization. In terms of categorizing localization research, Fang (2014, 2) proposed a classification scheme based on “theories, management, and technology.” However, when comparing Fang’s framework to the more recent comprehensive and systematic map of localization research by Jiménez-Crespo (2019), it becomes evident that the latter offers a more detailed and interdisciplinary perspective, including comprehensive coverage of various research areas and their interrelationships. Indeed, the conceptual studies mentioned have provided insights into various aspects of localization, including its theoretical foundations, management approaches, technological considerations, and interdisciplinary connections. However, it is important to acknowledge that ongoing research and exploration are crucial to keep pace with the evolving nature of the field and to address new challenges and opportunities that arise in an increasingly globalized and interconnected world.

3.2.5 *Localization and technology*

There have been case studies specifically focused on localization and technology, both in English and Chinese papers. While online AI tools or technology-driven platforms can facilitate the localization procedure and enhance students’ motivation (e.g. Sánchez-Ramos 2019), any language bias in neural machine translation output is problematic when localizing terms in different language varieties (e.g. Bowker and Blain 2022). Wang and Liu (2015) provided a detailed overview of the development and application of localization technology throughout the process, covering aspects such as localization systems, quality assessment, localization engineering, localization testing, desktop publishing, and business management. Further research is needed to delve into how different kinds of localization technology specifically facilitate translators’ work throughout the process. As human-machine interactions (Läubli and Green 2020; O’Brien 2012; Pietrzak and Kornacki 2021) increasingly become an integral part of various fields, understanding the impact of machine translation technology on localization practices is crucial. Wang and Xu (2022) conducted an analysis of the effect of machine translation technology on localization practices, particularly in the context of multimedia

products. In summary, while some studies have addressed the topic of localization and technology, further research is clearly needed to explore how technology can effectively support and improve the work of translators in the localization process.

4. Conclusion and future directions

In this study, we conducted a systematic comparative analysis of localization research within the field of translation studies, based on a review of 43 Chinese and 104 English journal articles published between 2012 and 2023. The analysis explored variations in the types of papers, research areas, and methodologies employed across the two datasets. This study aimed to identify and articulate the differences in research foci and methodological approaches between English and Chinese publications.

First, the prevailing trajectory in research areas and topics indicates a growing interest in game localization, user preferences, and localization education and training. Concurrently, there is a discernible increase in scholarly attention toward game localization in English papers. Different from many English papers that employed theories, or models for descriptive or explanatory purposes, research papers in Chinese focus on reflective discussions related to understanding localization practices and place significant emphasis on the training of professional localizers. The focus on upskilling professional localizers is likely influenced by the growth of translation education programmes that increasingly emphasize the importance of competence in using localization technology (Cui and Huang 2022), as well as by recent translation policies in China, such as “一带一路倡议[the Belt and Road Initiative]” and “加强国际传播能力建设[Policy on Strengthening International Communication Capacity]” (Zhang 2023). These policies support the international circulation of Chinese digital, commercial, and cultural products, thereby enhancing China’s cultural soft power and promoting localization practices. Despite ongoing pedagogical discourses concerning localization for some time, a significant proportion of proposed curriculum designs lacks an empirical basis, especially in terms of pedagogical experiments and subsequent studies aimed at identifying critical variables in the curriculum designs. Given the increasing demand for localization practices due to the globalization of Chinese enterprises and cultural products (e.g. video games, comics, animated films), an increase in empirical academic research focusing on specific localization practices can be anticipated, in alignment with market developments in the future.

Second, the decline in localization papers published in Chinese journals from 2012 to 2023 can be attributed to two key factors. First, Chinese researchers are

increasingly aiming to publish in international, English-language journals to gain wider recognition and impact. This trend is driven by the global emphasis on international collaboration and the desire to reach a broader audience (Zhang et al. 2021). Many researchers are incentivized by academic institutions and funding bodies to publish in high-impact international journals, which are often perceived as more prestigious and influential. As can be seen from our current review, there is a noticeable trend of Chinese scholars publishing their empirical research (10.58%, $n=11$) in the 14 English-language journals. This development suggests an increasing effort by Chinese scholars to disseminate their empirical findings on localization to the international academic community. Second, many Chinese faculty members lack localization experiences and have limited awareness of the importance of localization practice in the language services industry (Mu 2020, 94), contributing to a growing disconnection between academic localization research and the flourishing localization market (Translators Association of China 2024, 11). These factors have possibly affected the volume of relevant academic publications in Chinese journals.

Third, the outcomes of our review suggest that academic investigations into localization practices tend to adopt a descriptive stance across publications both in English and Chinese. This adoption of a descriptive approach within localization studies aligns with broader methodological shifts in the discipline, as evidenced by a systematic literature review by Han, Lu, and Zhang (2023) covering from 2000 to 2020. Furthermore, the importance of empirical methodologies in localization research underscored by Jiménez-Crespo (2020) suggests a growing consensus on the value of evidence-based research. Notably, English-language papers have shown preference for qualitative methods, especially through case studies. Utilizing multi-methods and mixed-methods designs to examine the complex aspects of localization practices has also been observed, facilitating a deeper and more nuanced understanding of the field. In contrast, Chinese research tends to emphasize general features with a lesser focus on empirical evidence geared for developing educational frameworks aimed at training professional localizers. Such frameworks seek to bridge pedagogical activities with long-term career development, addressing societal needs. The analysis of English and Chinese publications reveals distinct perspectives and methodological approaches to the study of localization. Chinese research on localization, compared to its English counterpart, tends to focus more on descriptive analyses of processes. As more Chinese scholars publish in English language journals, their efforts to share empirical findings with the global academic community have become increasingly evident. This trend highlights a divergence in methodological and topical preferences between English and Chinese-speaking academic publications, which in turn influences the

publication strategies of scholars navigating these different linguistic and cultural contexts.

Finally, it is important to acknowledge certain limitations of our analysis in terms of search strategies and the selection of databases. The inclusion criteria were confined to papers written in English and Chinese from 14 representative journals, spanning three datasets from the distinct databases. This focus may have inadvertently excluded significant scholarly contributions in other languages. For example, multilingual translation studies databases such as BITRA (Bibliography of Interpreting and Translation) might have been beneficial in capturing relevant research across a broader range of languages. Notwithstanding this limitation, our findings have revealed a notable different focus in Chinese academia in comparison with the English counterparts in terms of localization research areas. These differences present an opportunity for increased academic exchanges and collaborations in the future. By recognizing and bridging these gaps, scholars from different regions can contribute to a more comprehensive and diverse understanding of localization as a dedicated field of study.


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