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Research in Game Localisation: An Overview[i]

ABSTRACT

Game localisation is an emerging field in Translation Studies that initially began attracting attention in the late 1990s, when the first studies analysing this new translation phenomenon were published by professionals working in the field. In the last decade, research on game localisation has gained impetus. Particularly, in recent years, the number of books, journal articles, book chapters, undergraduate, masters and doctoral dissertations aiming to shed light on this relatively young area of study have increased considerably. This paper examines existing research on game localisation, focusing on published papers (articles and book chapters) and books. It presents a diachronic view of game localisation research, describing the main topics and methods used, as well as the issue of research materials. Finally, it explores potential future research avenues and calls for reception studies, which are necessary to consolidate game localisation as an established research domain within Translation Studies.

Keywords: game localisation, research in game localisation, research avenues; research methods; research materials; reception studies

1. Introduction

The video game industry has come a long way since its humble beginnings in the 1960s. Today, it is a significant player in the entertainment sector, reaching $99.6 billion revenue in 2016 (Newzoo 2016). Localisation, the process of adapting a game technically, linguistically and culturally in order to market it in different territories, has played a key role in this success (Chandler 2005; Chandler and Deming 2012; O'Hagan and Mangiron 2013; Bernal-Merino 2015). Localisation processes have evolved in parallel with game technology due partly to the efforts of industry professionals. The International Game Developers' Association Game Localisation Special Interest Group[ii] drafted a best practices document (Honeywood and Fung 2012), which has contributed to the standardisation to the industry. It is also worth noting that the number of languages into which games are being localised has increased over recent years, going beyond the traditional French, Italian, German and Spanish (FIGS), or English and FIGS in the case of Japanese games (EFIGS), to cover East Asian Languages such as Chinese, Japanese and Korean (CFK) and emerging markets such as India, Russia, and Brazil (Stempniewicz 2015; Silvandersson 2016).

The increasing importance of game localisation practices within the video game industry, together with the specificity of this type of translation,[iii] attracted in the first instance the interest of industry professionals, who began to reflect on their work in the late 1990s (Dietz 1999) and early 2000s (Scholand 2002). From the mid-2000s onwards

the academic community began to devote attention to game localisation, and additional studies analysing this new phenomenon from a translation studies perspective were published (see, for example, Bernal-Merino 2006 and Mangiron and O'Hagan 2006). Since then, studies on game localisation have continued to gain impetus and the time has now come to take stock of research in this field to date.

This paper presents an overview of existing research in game localisation, highlighting the main topics and methods[iv] used, as well as exploring potential future research avenues in this field, with a view to contributing to the consolidation of game localisation as an established research domain within Translation Studies. It should be highlighted that due to the scope of the paper, it takes a descriptive approach, rather than a critical approach, to the analysis of the work published to date. In addition, this overview mainly includes articles published in academic journals, book chapters, books, and PhD dissertations. Conference presentations, undergraduate dissertations and master dissertations have not been included due to the difficulty in accessing them.[v] Furthermore, only papers in English and Spanish have been considered, since these are the predominant languages in which research in this field has been carried out to date and also the author's working languages. Finally, the author would like to apologise for any unintentional omissions and would welcome any information on papers that may have been overlooked.

2. Early days: 1999 to 2005

Video games have been available for over five decades now, since the development of *Space Wars* by Steve Russell in the Massachussetts Institute of Technology (MIT) in 1962, which became the first game to be widely distributed within MIT and played on multiple computers (Kent 2001: 20). For a long time, video games were considered a

childish pastime and did not attract much academic attention. However, in 2001 things changed, as the first academic conference on the topic was held and the first issue of *Game Studies*, the first academic, peer-reviewed journal dedicated to Game Studies was published. For this reason, 2001 is considered by game scholar Aarseth 'year one' of Computer Game Studies. Game Studies is an interdisciplinary domain, with scholars analysing games from diverse perspectives, such as anthropology, sociology, psychology, narratology, semiotics, cultural studies, genre studies, media studies, and computer studies, to name but a few.

However, despite the importance of localisation to the game industry, the academic discipline of Game Studies has ignored localisation practices. The first contributions on game localisation as a professional practice are by industry professionals reflecting on the specificity of this new type of translation, such as the article published in 1999 by Dietz, an English to German translator, in the *American Translators Association (ATA) Chronicle*. In 2001 Timiani Grant (2001), from Eidos Interactive, published an article in the now defunct trade industry magazine *Language International* that focused on legal issues and age ratings in video games, paying special attention to Germany and its strict rules and regulations (O'Hagan and Mangiron 2013: 31).

The year 2002 witnessed the publication of what could be considered the first academic paper about game localisation in the open access online journal *Tradumàtica* by Scholand, an English to German translator, describing the main features of this type of translation. In 2003, Trainor published a short feature on game localisation production and testing at the industry magazine *Multilingual Computing and Technology*. In 2004, Thayer and Kolko published a paper comparing software localisation with game localisation and highlighting the complexity of localising games

with culturally-specific narratives, which call for a "blending" approach of local and foreign elements (O'Hagan and Mangiron 2013: 35). Additionally, in 2004, a brief article was published in the also now defunct *Localization Industry Standards Association's* (LISA) *Newsletter* by Mangiron, presenting a case study of the localisation of the Japanese role-playing games (RPG) series *Final Fantasy* (1987 to date), and another by Darolle, from Square-Enix, on the challenges of game localisation. In the same year, O'Hagan and Mangiron also presented a paper at the New Zealand Game Developers' conference describing the Square-Enix localisation model, which was published in the proceedings.

In 2005 the first monograph on game localisation was published by industry professional Chandler, which provides localisation guidelines, as well as numerous examples and interviews with developers and publishers.

3. 2006: 'Year one' in game localisation research within Translation Studies?

The year 2006 is an important landmark in game localisation research, as six academic papers on the topic were published (Mangiron and O'Hagan; Bernal-Merino; Mangiron[vi]; Kehoe and Hickey; Dietz, and Heimburg).

Mangiron and O'Hagan (2006) describe the specific features of game localisation and illustrate the degree of creativity involved in this type of translation, which they refer to as *transcreation*, a term that has been subsequently identified as one of the key strategies in game localisation. On the other hand, Bernal-Merino (2006) explores the different terms used to define this industry practice. Since both papers were published in *JoSTrans*, an open access journal, they have been widely available to other researchers and have become seminal works of reference in the field. In another article, Mangiron (2006) describes the assets that need to be translated, the different

localisation models and the translator competence required to work in this field. Kehoe and Hickey (2006), from Vivendi Universal Games, discuss the differences between the localisation of business-type applications and the localisation of games. Dietz (2006) identifies the unique challenges of this type of translation and proposes a number of steps to be taken to facilitate the localisation process. Heimburg (2006) addresses the challenges involved in the localisation of massively multiplayer online role-playing games (MMORPGs).

In addition, industry magazine *Multilingual* also featured several short articles on game localisation. Furthermore, game localisation by this point was beginning to attract more academic attention, not only from Translation Studies scholars, but also from Game Studies scholars, such as Ng, and Consalvo. Ng (2006) addresses the consumption and localisation of Japanese games in an Asian context, while Consalvo (2006) carries out a case study on Japanese developer Square-Enix to illustrate the degree to which the contemporary console game industry is a hybrid combining a mixture of Japanese and American businesses and cultures.

4. Development phase: 2007-2011

Interest in game localisation as an academic discipline continued to flourish, and in 2007 the first special issue devoted to it was published by the journal *Tradumàtica,* from the Universitat Autònoma de Barcelona, edited by Mangiron. The issue contains nine contributions both by scholars and industry practitioners, and deals with an array of topics, such as an overview of the main players in the game industry (O'Riada 2007); the different text types present in a video game and the skills required to translate them (Bernal-Merino 2007); an overview of the game localisation process (Loureiro 2007); the skills needed to work as a localiser (Dietz 2007); the localisation of games for

mobile phones (Torres 2007); cultural localisation of Japanese games (Di Marco 2007); rom-hacking (Muñoz Sánchez 2007); a case study of the localisation of a video game for children (Fernández 2007), and a paper about research avenues in game localisation (O'Hagan 2007).

Research on game localisation continued apace in the following years, with several contributions from different authors. For example, Bernal-Merino dealt with topics such as the different text types present in a game (2008a), training game localisers (2008b), creativity (2008c), and the relationship between video games and children's literature (2009). Muñoz-Sánchez (2008, 2009) continued his work on rom-hacking and fan translation. On the other hand, O'Hagan focused on fan translation (2008, 2009b), player experience (PX) (2009a), and the localisation of Japanese games (2009c). Jayemmane (2009) interviewed three localisers of Japanese games about their professional experience, and Mangiron (2010) performed a case study on the translation of humour in the *Final Fantasy* series.

In 2009, *JoSTrans* featured a video interview with Ranyard and Wood, from Sony Computer Entertainment Europe, by Bernal-Merino, about the profile of the professionals involved in game localisation, the industry's role, and the main types of projects.

In 2010 the first academic conference focusing exclusively on game localisation and game accessibility, *Fun for All: Translation and Accessibility Practices in Video Games*,[vii] was held by the TransMedia Catalonia research group at the Universitat Autònoma de Barcelona, gathering academics and practitioners with the objective of encouraging the dialogue between town and gown. The conference has continued to run successfully on a two-yearly cycle, a clear indication that interest in game localisation is increasing in the academic community.

The year 2011 was another important landmark in game localisation research, as the second special issue of a Translation Studies journal, *TRANS. Revista de Traductología,* from the University of Málaga in Spain, was published, edited by Bernal-Merino. This volume contains nine articles by a combination of scholars and industry practitioners, with topics ranging from the history of game localisation (Bernal 2011); culturalisation (Edwards 2011); a case study of the localisation of the *Buzz!* series (2005-2010) (Crosignani and Ravetto 2011); the localisation of large multiplayer online games (Christou, McKearney and Warden 2011); fan translation (Díaz Montón 2011); game localisation management (Bartelt-Krantz 2011); training (Vela Valido 2011); the translation of historical games (Serón 2011), and game accessibility (Mangiron 2011).

Granell (2011) also published a paper on teaching game localisation, while Liubinienė and Šiaučiūnė (2011) did a case study on the translation of in-game texts into Lithuanian. There were also four contributions in edited volumes on the translation of Japanese video games (O'Hagan 2011, Mangiron 2011), research in game localisation (Muñoz Sánchez 2011), and the challenges of game localisation from a project management point of view (Zhou 2011).

From a Culture Studies perspective, Carlson and Corliss (2011) analysed ideological and power issues in game localisation, focusing on the role of game localisers as intermediaries who filter the images and narratives that are sold to global consumers.

2012 was another important year in game localisation research, as several authors published journal articles and book chapters on the topic. O'Hagan examined game localisation studies in the Japanese context (2012a), as well as the implications of translating video games for entertainment (2012b). Mangiron looked at the main

challenges of game localisation (2012a), analysed the most frequent localisation approaches for Japanese games (2012b), carried out a descriptive study about subtitling in games (2012c, 2012f) and also further examined accessibility issues (2012d, 2012e, Mangiron and Orero 2012). Fernández-Costales (2012) described translation strategies commonly used in game localisation, while Schules (2012) examined localisation's effect on the gameplay of Japanese RPGs. Bernal-Merino (2012a) explored the professional aspects and roles in game localisation, and Zhang (2012) analysed the phenomenon of censorship in game localisation in China. From a Communication Studies perspective, Mandiberg (2012) studied game translation as an interface between the world, players and games, which can help understand the game's relationship to power structures, cultural interaction, and flow.

In 2013, Czech published a paper on the challenges of game localisation using examples from a case study of the localisation of the *Call of Duty* series (2003 to date) into Polish. Sajna (2013) compared the technical problems involved in the translation of films and video games.

As far as monographs are concerned, Chandler, together with Deming, published an updated edition of her 2005 book, reflecting on the latest advancements in the game localisation industry. This new edition also included contributions by Bernal-Merino (2012b), aimed at developers and giving them guidelines on working with translators in the localisation process, and Edwards (2012) on the culturalisation of game content.

Regarding doctoral dissertations, in 2010 the first PhD on game localisation in Spain was awarded to Pérez Fernández (2010), who described technical, methodological and professional aspects of game localisation. This was followed by a

thesis by Méndez González (2012) on translation and paratextuality in game localisation.

Articles on game localisation were also published in this period in professional and industry journals and magazines, such as *Multilingual* (2008, 2011, 2012), *The Linguist* (Díaz-Montón 2007), and the *ATA Newsletter* (Dietz 2008), describing the main features and challenges of this type of translation, which is possibly the most prominent research topic in the field to date.

5. Consolidation phase: 2013 to date

Since 2013, research on game localisation has advanced steadily, and has resulted in four books published to date, as well as several journal articles, and doctoral dissertations. In 2013, a monograph by O'Hagan and Mangiron was published, seeking to conceptualise game localisation and locate it within Translation Studies.

In 2014, an edited volume covering several issues regarding game localisation and accessibility was published (Mangiron, Orero and O'Hagan, eds.), covering an array of topics. There were several papers on game accessibility (Grammenos 2014; Fernández Costales 2014a; Torrente et al. 2014; Mairena 2014) and game localisation. Papers on game localisation dealt with issues such as the ludological approach to localisation (Lepre 2014); translation strategies (Van Oers 2014); the blindfolded translation of onscreen text (Tarquini 2014a); fan translation (Müller Galhardi 2014); terminology management (Zhang 2014); localisation and diaspora of the Chinese community (Mandiberg 2014); training offered in Spanish universities at undergraduate level (Carreira and Arrés 2014); challenges in localisation projects (Alonso 2014), and culturalisation (Edwards 2014).

In 2015, another specialised monograph was published by Bernal-Merino focusing on game localisation from a descriptive translation studies perspective, aiming to investigate the game localisation process, mapping professional practice and discussing the implications of this new translation practice in Translation Studies. In 2017, a monograph by Granell, Mangiron and Vidal was published in Spanish, which describes the main features of game localisation and also includes practical exercises. There is another monograph in Spanish by Muñoz-Sánchez (forthcoming) discussing the main features of this type of translation from a professional perspective.

In this period several journal articles have also been published about the topic, with the objective of achieving a deeper inside into the discipline (Méndez González 2013, 2014a, 2015a); analysing the terminology used in video games (Méndez González 2014b), and looking at the localisation of paratexts in games (Méndez González 2014c). There are also papers describing translation strategies for the localisation of superhero video games (Fernández Costales 2014b); describing new screen translation modes that are emerging in game localisation by contrasting them to the audiovisual translation (AVT) framework (Tarquini 2014b); studying users' perception of localised games (Méndez González 2015b, Fernández Costales 2016); describing game localisation as a software-mediated cultural experience (O'Hagan 2015), and video games as cultural references (Méndez González 2016). Mangiron (2016a) carried out a pilot study on the reception of subtitles, both by hearing and deaf users, and also explored the potential application of audio description to games (with Zhang, 2016). Mangiron also analysed the situation of game localisation for the Catalan language (2016b), as well as the cultural dimensions of game localisation and the translation of linguistic variation in games (2016c). Bernal-Merino (2016a) called for the need to apply globalisation strategies to game development that go beyond

localisation and include the co-creation of local content from early stages of the development cycle. This author also examines semiotics and pragmatics as tools for video game localisation (2016b). O'Hagan and Chandler (2016) bring together perspectives about game localisation from a scholarly and a game producer perspective. O'Hagan (2016) focuses on game localisation as emotion engineering, presenting a reception study comparing the player experience of users from an original game in English, and the localised German and Japanese versions by means of questionnaires and physiological measurements. Muñoz-Sánchez and López Sánchez (2016) describe the main features of localisation for mobile games. Dong and Mangiron (forthcoming) analyse cultural adaptation of video games for the Chinese market.

Regarding doctoral dissertations, in 2013 Bernal-Merino completed his PhD on game localisation, and in 2015 Lepre presented hers on the translation of humour in point-and-click games. Pujol (2015) analysed the representation of characters through dubbing in transmedia narratives, comparing movies and video games. Zhang's dissertation (2015) focused on game localisation in China from the perspective of an agent-network theory. Pettini (2017) studied the translation of culture-specificity in video games set in real and fantasy worlds. From a Communication Studies perspective, Mandiberg's dissertation (2015) dealt with the translation of games between Japan and the United States. In addition, there are also PhD dissertations currently being ongoing, such as that of Strong on gamer-generated language and the localisation of MMORPGs, and Dong on the localisation of *League of Legends* into Chinese.

6. Research topics and methods

As it stems from the diachronic overview of game localisation research, to date, research in this field has been mainly empirical, which Williams and Chesterman

(2002: 58) define as research that "seeks new data, new information derived from the observation of data and experimental work". However, there has also been some conceptual research, aiming "to define and clarify concepts, to interpret and reinterpret new ideas, to relate concepts into larger systems" (58), such as O'Hagan and Mangiron (2013), and Bernal-Merino (2015).

Therefore, most research on game localisation falls into the category of descriptive translation studies, with qualitative approaches aiming at observing and describing data being predominant. After over fifteen years of research in the field and thanks to the impetus the discipline has gained in recent years, there is now a solid base of descriptive studies from which more conceptual research and methodological discussions can arise, in order to consolidate this field within Translation Studies.

Another important characteristic of the research in game localisation is its interdisciplinary nature, as it has been approached from Translation Studies, Game Studies, Media Studies, and Culture Studies, to name but a few. As games are complex, multimedia, multimodal, technically sophisticated cultural products, all these disciplines can shed light on how game localisation works and contribute to a better understanding of the discipline that can, in turn, contribute to improving industry practices. Work in interdisciplinary teams can also prove to be fruitful, as it can facilitate a holistic approach to the study of games.

Regarding the main research trends in game localisation, as shown in the previous section, an important amount of papers, particularly from the early period, describe the main features, challenges, priorities and constraints of this type of translation, as well as the localisation process, the agents involved in it and the different localisation models. Some of the existing literature also touches on the relationship of

game localisation with other types of translation, mainly software localisation, but also AVT and literary translation to a lesser extent.

In terms of product-related research, emphasis has been given to the study of the different assets, text-types and paratexts that make up a video game, usually in the form of case studies. In terms of gaming platforms, research has tended to focus on console games. There is practically no literature on the localisation of games for mobile phones (except for Torres 2007 and Muñoz-Sánchez and López-Sánchez 2016) and little about massively multiplayer online games (MMOG), despite the increasing importance of these segments in the game market.[viii]

Another fact that stands out when analysing the existing literature is the predominance of the study of Japanese games and the cultural adaptation that they undergo when being localised for other markets. This places Japanese culture as an important source culture, unlike in other subdomains of Translation Studies, where it plays a more marginal role, such as in literary translation. However, there is a lack of studies focusing on game localisation into Japanese, possibly because non-Japanese developers do not make many changes to their games when localising them for the Japanese market and also because Translation Studies is only now starting to develop as an academic discipline in Japan (O'Hagan 2012a: 183).

As is customary in Translation Studies, there has also been descriptive research on translation strategies, the translation of humour, the use of terminology, and cultural adaptation, also known as *culturalisation* in this field. However, studies on censorship have largely been overlooked in game localisation research, despite the fact that some countries, such as Germany, have strict control over the content of games.

Other topics that have caught researchers' attention are fan translation and rom-hacking, in order to study the reasons and motivation behind participatory culture in

games, to describe the process followed by non-professional translators, and to analyse the quality of their products.

Regarding applied research in this field, to date it has concentrated on pedagogical and training issues, as well as trying to define the skills and competences that a game translator should have.

It should also be highlighted that some of the existing literature focuses on the topic of research itself (O'Hagan 2007; Muñoz Sánchez 2011; O'Hagan and Mangiron 2013; O'Hagan and Chandler 2016). In her 2007 paper, O'Hagan identifies several research areas, such as: localisation and translation strategies in relation to user reception; how different genres and platforms can influence the localisation process; the importance of translator's domain knowledge and its implications for training future game localisers; how technological advancements have impacted on the evolution of game localisation practices; the application of dedicated natural language processing systems for communication purposes in online games; the study of the multimodality of game interaction in localised games, and the study of how technical and socio-cultural factors must be taken into account in order to provide a similar gaming experience to players of localised versions.

Muñoz Sánchez (2011) mentions four major areas that should be investigated further: specific training for game localisers; the advantages and disadvantages of the in-house and the outsourcing game localisation models; reception studies, and transcreation and humour in game localisation.

On the other hand, O'Hagan and Mangiron (2013) identify several key research areas, including the conceptualisation of game localisation; its relationship with localisation; culturalisation and the culturally hybrid nature of game localisation; censorship and age ratings; how local and global contexts impact on game localisation;

collaborative translation; text-types, and transcreation (34-39). In addition, they devote a full chapter to game localisation research in Translation Studies, in which they propose "a research direction which focuses on the end user of a translated product" (277), thus highlighting the importance of users in this type of translation. O'Hagan and Mangiron (2013) identify three specific areas of research based on the user that can help conceptualise game localisation, namely game usability and accessibility; game localisation and fan studies, focusing on the role of fans as co-creators, and user-focused empirical research based on player experience studies. The authors also briefly describe some of the latest developments in game technology, such as natural language interaction between the player and the game system by means of artificial intelligence (AI) and chatbot.[ix]

O'Hagan and Chandler (2016) analyse game localisation from "the perspectives of game production with industry insights and game localisation research, drawing on a framework of translation studies" (310) and conclude highlighting future research avenues, such as the study of gender-related considerations, censorship, crowdsourcing, and the potential application of machine translation (MT) to game localisation (326-327).

As regards methodology in game localisation research, as previously mentioned, it has been mainly empirical. In terms of methods, qualitative methods are predominant, and most of the research is based on first-hand industry experience and self-reflection of the authors or on textual analysis and case studies focusing on particular aspects.

There are also a limited number of participant-oriented studies using tools such as interviews and questionnaires. Chandler (2005) and Chandler and Deming (2012) include several interviews to different agents in the game localisation process, such as

developers, localisation vendors, and localisation producers. Jayemanne (2009) interviewed three professional translators, while Díaz Montón (2011) interviewed eight fan translators. O'Hagan and Mangiron (2013) also interviewed a renowned game translator from Japanese into English, and O'Hagan and Chandler (2016) interviewed a US-based game localisation specialist.

Regarding the use of questionnaires, Carreira and Arrés (2014) did a study with 30 game translators about their training background. Fernández Costales (2016) carried out a large-scale survey with 94 participants by means of a questionnaire about the translation of video games, language preferences, and users' habits regarding video game websites, official videos, and advertising.

It should also be mentioned that experimental research, such as reception studies, is still quite uncommon. Despite the fact that the main skopos of game localisation is to reproduce the gameplay experience of the original, there are no large-scale studies confirming whether this hypothesis, which has become one of the pillars of game localisation theory, holds true. The only reception studies about player experience available are those by O'Hagan (2009, 2016). O'Hagan (2009) performed an explorative study of the reception of the English localised version of the Japanese game *Ico* (Team Ico 2001) by a player, recording the play trajectory, hand movements and utterances, as well as a game log written by the player, detailing his feelings and impressions, and a player interview. This pilot study was followed by a larger scale study with 21 participants using physiological measurements (eye-tracking, facial expressions, heart rate, and galvanic skin response) and self-reporting and post-task interviews to compare the player experience of users of the original English version and the localised German and Japanese versions. Such studies combine both quantitative and qualitative data for data triangulation purposes. Mangiron (2016) also

carried out an experiment on the reception of game subtitles using questionnaires and eye tracking technology. These experiments, even if the number of subjects is too small to obtain any concluding data and make generalisations, represent a step forward in game localisation research and indicate the direction in which the discipline should advance, with larger scale experiments testing more users and locales.

7. Research materials

Researchers in the field of game localisation must inevitably deal with the difficulty in obtaining materials, as pointed out by Bernal-Merino (2008b, 2015), Muñoz Sánchez (2011), and O'Hagan and Mangiron (2013). Due to confidentiality issues and non-disclosure agreements (NDAs), developers and publishers are unwilling or simply unable to provide information about the localisation process or provide researchers with materials.

Since games are multimedia, multimodal, non-linear products, it can take a long time to transcribe the script or reach the relevant part of the game to be analysed. Taking screenshots of the game can also be a time-consuming task if the game is being played on a console.

Independent (indie) developers are usually keener to share their game and their experience in localising games than mainstream commercial developers. The games of the localisation contest LocJam[x] are also available for research and training purposes, as well as the materials from the EU funded eCoLoMedia project.[xi] The Internet can also be a source of materials, as there are numerous fan sites, blogs, wikis, and specialised sites with information about games that include screenshots, transcriptions of game scripts, walkthroughs,[xii] lists of items, information about translation errors in the localised versions, data about how a particular game has been received in a given

territory, etc. There are also sites providing video walkthroughs, such as YouTube and Game Anyone?,[xiii] where video walkthroughs for thousands of games, containing gameplay for the whole game can be found, thus saving time to the researcher who wants to analyse a particular part of a game.

Another possibility is extracting the text of a game via reversed engineering or rom-hacking, as proposed by Muñoz Sánchez (2011), although this can be perceived as controversial, due to copyright issues. It could be argued that if it is for non-commercial, educational purposes and it is only a part of the game, it could be considered fair usage. However, this remains a moot point and using other methods for obtaining research material can help prevent this controversy. Academia-industry partnerships would be beneficial in order to overcome this hurdle and grant access to materials to researchers.

8. Future research avenues

Research on game localisation is steadily gaining ground, but there are still many aspects and features of this emerging type of translation than remain largely unexplored and merit further investigation. In addition, the fast-moving pace of the industry means that academics need to keep up to date with the latest developments in order to analyse them and provide useful feedback to the industry regarding best practices. Keeping up to date is also essential for designing training courses that meet the industry needs.

Despite the fact that efforts have been made to conceptualise game localisation and locate it within Translation Studies, more research is necessary to establish a solid theoretical and methodological framework for the discipline. There is a need to further analyse its relationship with other subdomains of Translation Studies, such as localisation, AVT, literary and technical translation. In particular, albeit game

localisation is often considered a type of AVT, because games contain scripts requiring dubbing, subtitling or both, standard dubbing and subtitling practices are not applied. The translator is often working with an Excel file without any context, and with no time codes, which can result in poor quality due to contextual errors and lack on synchrony. Therefore, more research is necessary in dubbing, known as *audio localisation* in the industry, and subtitling practices in game localisation, which can lead to the development of best practices. Also, issues such as multimodality and how it can affect game localisation and the reception of localised game should be explored in detail.

In addition, even though there are several case studies based on textual analysis, issues such as cultural adaptation, censorship, creativity, and the translation of humour, would benefit from further study, in order to try to detect trends and regularities and lead to the analysis of translation norms in game localisation. The issues of multilingualism and linguistic variation also call for attention. Linguistic variation is often present in games in the form of regional accents and dialects for characterisation purposes. Furthermore, when localising a game into a language that is spoken in different territories, developers and publishers must choose to which regional variety or varieties to localise, such as Castilian Spanish, Latin American Spanish or neutral Spanish, a version which may result in a lacklustre localisation as it lacks authenticity and colloquial flavour (Mangiron 2016c). Research on the reception of games in a given territory may provide the industry with relevant data to inform their decision as to which variety to localise to, or as appropriate, where to provide more than one version to cater for the different locales. Still within the area of game localisation and sociolinguistics, the localisation of video games into minority languages is also an interesting and underexplored research avenue (Mangiron 2016b and Fernández-Costales in this issue).

Corpus studies, which also feature predominantly in Translation Studies, including AVT, are still not available in game localisation, although they could provide a significant amount of data about regularities and norms in the field. Undoubtedly, wide scale corpus research is currently hindered by the previously mentioned confidentiality pervasive to this industry and the difficulty in obtaining materials.

In terms of gaming platforms, the localisation of games for mobiles and tablets, as well as the localisation of MMOG requires further research, as such games have specific features, such as the severe space constraints in mobile phones and the large volume of text and constant updates common to MMOGs. Within the genre of MMOG, special attention should also be addressed to eSports, which have become very popular and are an important source of income for the industry and indeed the players that take part in such competitions.

Regarding the different types of games and game genres, more comparative research on the localisation of different game genres would also provide information about what game genres are preferred in different territories and the localisation strategies more appropriate to translate them. The localisation of serious games, indie games and games based on transmedia franchises have been largely overlooked to date. Crowdsourcing, one of the most frequent methods used by indie developers to localise their games, is expected to increase in the coming years, and is another potential rich mine for further study. Crowdsourcing can be compared with fan translation and professional translation to study several interesting issues, such as the role of the user as a *prosumer* (O'Hagan 2009c) and the elusive concept of *quality*.

Another key area that is likely to gain attention in the future is the application of new technologies and their impact on localisation processes, such as an increasing use of CAT tools and localisation management tools, as well as the potential application

of machine translation to certain game genres or assets. In addition, augmented reality (AR) and virtual reality (VR) are expected to feature predominantly in future games (Webber and Brewster 2016), and are going to impact on localisation processes and standards, such as terminology and subtitling practices.

As far as participant-oriented research is concerned, as already mentioned, reception studies are still fairly scant and more comparative, cross-culture, interdisciplinary experiments are necessary in order to analyse aspects such as player experience, immersion, and engagement. Having interdisciplinary teams formed by translation scholars, psychologists, and game designers could provide relevant information for game developers about the best localisation strategies for different territories.

In terms of the agents involved in the game localisation process, sociological approaches are still not available (except for Zhang 2015). Little is known, for example, about the field of game localisation in Bourdesian terms, and the dynamic and complex relationships between the different agents, due to the confidential nature of the industry. In addition, it would be interesting to explore topics such as ideology in game localisation and the relation of game localisation with politics and journalism from an interdisciplinary perspective including game studies, media studies, and political science.

Netnographic approaches have also been overlooked to date, even though an important amount of information on game localisation is available on specialised websites, blogs, and Internet forums, where professionals, game critics and reviewers, as well as players and fan translators, use the Internet as the main medium for expressing their views and communicating with each other. The success or failure of a game can depend on such reviews and comments on specialised sites and forums, and

game developers and publishers tend to monitor such sites closely. Therefore, an analysis of such materials can also provide insightful information about players' preferences and the reception of a given game or genre in different territories.

As regards process-related research, such as think aloud protocols (TAP) and self-reporting, studies are still unavailable in this field. Such studies could provide relevant information about transcreation and creativity processes in game translation as well as the translator's agency, all of which are key features in game localisation due to the high degree of liberty game localisers are granted in order to bring the game closer to the target audience.

Finally, game accessibility is a pending issue both for the industry and academia, and it can be expected to gain prominence in future years in both respects, as more efforts are made by governments and society to guarantee access to culture for all.

9. Conclusions

As illustrated by the literature review presented in this paper, research in game localisation has come a long way since the first paper on game localisation was published in 1999. There is now a significant amount of research on which to steadily develop and consolidate. Research in this field has been largely linked to industry practices, with a predominantly descriptive approach. However, conceptualisation efforts have also been made in order to lay the foundations of game localisation as a subdomain of Translation Studies and describe its unique characteristics as well as its relationship with other subdomains.

This paper has presented a diachronic and descriptive overview of game localisation research, with the aim of taking stock of the main topics and methods of

analysis used to date and providing a summary for those interested in continuing research in this field or embarking in it for the first time. The paper also highlighted the interdisciplinary nature of game localisation research, the difficulty in obtaining materials and research data due to the confidential nature of the industry, and stressed the need for industry-academia collaboration in order to advance the discipline forward.

The need to combine descriptive studies with experimental research that will provide information about how localised games are received in different territories was also emphasized. This, in turn, will result in information useful for the industry about how to design games taking internationalisation and localisation into account from the early stage of the process. Academia-industry partnerships are essential in order to build a significant corpus of research materials that can contribute to a better understanding of current practices and lead to the consolidation of best practices, while also providing materials for training future localisers that can meet the industry needs.

Finally, a number of potential future research avenues that can contribute to gaining a deeper insight of game localisation were also outlined. The possibilities in this field are really endless, and it is up to the academic community to continue ploughing ahead in order to harvest data that can help consolidate the discipline. Undoubtedly, game localisation is an exciting, technologically driven, fast-paced industry, which offers plenty of opportunities to explore this sandbox-like research field to any researcher willing to accept the challenge.

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Games

Buzz! (Relentless Software 2005-2010)

Call of Duty (Infinity Ward 2003 to date)

Final Fantasy (Square-Enix 1987 to date)

Ico (Team Ico 2001)

League of Legends (Riot Games, 2009 to date)

Plants vs Zombies (PopCap 2009)

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[i] This research is supported by the Catalan Government funds 2014SGR27.

[ii] For more information, see http://www.igda.org/members/group_content_view.asp?group=121045&id=450710.

[iii] It is beyond the scope of this paper to present the main features of game localisation, but a detailed overview can be obtained from Chandler and Deming (2012), O'Hagan and Mangiron (2013), and Bernal-Merino (2015).

[iv] In this paper, the distinction between methodology and method proposed by Saldanha and O'Brien (2013: 13) is followed, whereby a "**methodology** is a general approach to

studying a phenomenon whereas a **method** is a specific research technique" (emphasis in the original).

[v] For a more exhaustive approach, see O'Hagan and Mangiron (2013: 26-39).

[vi] This paper also appears cited occasionally as 2007, since Volume 14 of the journal was published across 2016-2017, but the first available printed copy is dated of 2006.

[vii] For more information on past editions, see http://jornades.uab.cat/videogamesaccess/.

[viii] Games for mobile phones and tablets are currently generating 37% of the income of the global game market, and games for PC and MMOG 27% , in comparison with the 29% generated by games for consoles (Newzoo 2016).

[ix] A *chatbot* is a computer programme that simulates a conversation with a human through text (O'Hagan and Mangiron 2013: 320).

[x] LocJam is a global non-profit game localisation contest organised by the International Game Developers Association Localisation Special interest group and a game localisation provider named Team GLOC. It started in 2014 and has run every year since. For more information, see http://www.locjam.org/.

[xi] The eCoLoMedia project was funded by the EU Leonardo da Vinci programme to create training materials in the field of multimedia localisation, including game localisation, that would be freely available online. For more information, see https://www.leeds.ac.uk/arts/info/125053/centre_for_translation_studies/1807/research_and_innovation/6

[xii] Walkthroughs are guides detailing all the different steps required to progress in a game.

[xiii] See http://www.gameanyone.com/.