Design Recommendations for Improving Immersion in Role-Playing Video Games: A Focus on Storytelling and Localisation

Vanessa Cesário*[1], Mariana Ribeiro*[2], António Coelho[2,3]

[1] Interactive Technologies Institute (ITI/LARSyS), IST University of Lisbon, Lisbon, Portugal
[2] Faculty of Engineering of the University of Porto, Porto, Portugal
[3] Institute for Systems and Computer Engineering, Technology and Science (INESC/TEC), Porto, Portugal
* Both authors contributed equally to this paper
vanessa.cesario@tecnico.ulisboa.pt

Abstract. This article investigates the role of storytelling in video game localisation and its impact on players' immersion and overall gaming experience. While these topics have been extensively studied and developed within the research community, there is still a lack of information combining them in a practical study specific to a particular genre or video game. Using grounded theory, we conducted a study using *The Witcher III: Wild Hunt* as a case study (role-playing game). We had 41 participants play the video game in two localised versions (English and Brazilian-Portuguese), complete questionnaires, and be interviewed about their gameplay experience after each version. The results provided design recommendations to enhance video game immersion (language and voice-acting) and highlight certain aspects that game designers should consider to further intensify players' immersion during gameplay.

Keywords: Storytelling, Localisation, Immersion, Video games, Role-playing game.

1 Introduction

Video games have gained greater dimensions and importance within our culture in recent years [1–6]. The entertainment market has seen a growing demand for immersive gameplay and alternative reality experiences in the last decade, even within the realm of cultural heritage research [7–9]. As the market expands, so does the pool of consumers and players, leading to a need to improve and explore the localisation process of video games and the features and stages it entails. Advances in technology now allow for greater interactivity and agency between players and their gameplay experiences.

Over the past decade, we have seen a significant rise in video games with improved mechanics, narratives, and gameplay that have revolutionized interactive

storytelling and immersion (*Heavy Rain [10]; The Walking Dead [11]; Journey [12]; Borderlands 2 [13]; Mass Effect 3 [14]; Max Payne [15]; Guild Wars [16]; Assassin's Creed III [17]; Darksiders II [18]; Sleeping Dogs [19]; Persona 4 [20]; Dear Esther [21]; Dishonored [22]; XCOM: Enemy Unknown [23]; The Last of Us [24]; Dragon Age: Inquisition [25]).* In interactive storytelling, the actions a person takes within the story shape the rest of its development to their needs and interests, creating more emotional involvement [26]. This field is ripe for expansion, and game localisation requires new translation approaches. While sharing some similarities with screen translation and software localisation, game localisation distinguishes itself by its goal of creating an immersive experience for players, allowing localisers to modify, omit, or add elements as necessary to bring the game closer to the player and convey the original feel of gameplay [27]. When it comes to localisation, there is a vast range of possibilities, alternatives, and techniques that are essential for the distribution, reach, and success of any video game [28], such as market research, localisation implementation, facial animation (modelled on real-life acting through motion-capture techniques), similarities in voice-acting between versions, familiarity between the video game and players, and content adaptation to fit the target language's background and history. Video games are a medium that encompasses all of these components, as they "*are a medium of entertainment and present a variety of different forms of storytelling and information. The stories within games come in the form of text, speech, activities, and cinematic narratives – cutscenes*" [29]. Research on narrative, immersion, and localisation, individually or together, has been extensively conducted [27, 30–40, 40–46]. However, this article distinguishes itself by focusing on all three elements within the field of video games, specifically the Role-Playing Game (RPG) genre, with a study involving *The Witcher III: Wild Hunt [47]*.

The focus of this study is to gather players' opinions and reactions to different localised versions (English and Brazilian-Portuguese) of the same video game, and analyse their feelings and feedback towards the combination of storytelling, localisation, and immersion within video games. In the first part of this contribution, we will discuss the current state of art on storytelling, localisation, and immersion in video games and their interconnectedness. In the second part, we will present the methodology and results of our case study on *The Witcher III: Wild Hunt*. Finally, in the third part, we will discuss the implications of our findings and suggest design recommendations for enhancing immersion in localised video games.

2   Storytelling in Video Games

According to Murray [45] computers are a new medium for storytelling, while Markku Eskelinen [48] argues that people are usually able to distinguish between narrative and gaming situations. Narrative in video games helps to structure the game and guide players through a compelling, immersive, and enjoyable experience [38, 49]. Stories increase meaning, emotion, and motivation for players to achieve the goals presented [38]. The storytelling component can be presented through alternate gameplay segments and is dependent on the developer or writer's intentions for the

game. It requires a team of professionals to bring a virtual vision and idea to life with engaging narratives, some of which focus more on action than others. The combination of designers, artists, writers, programmers, and musicians creates emotionally complex stories that focus on the relationship between player actions and video game aesthetics, while some aim to balance the narrative component with player agency and control over events [29, 50]. While video games can vary, with some focusing more on gameplay and others using gameplay as a medium to tell stories, narrative-driven games have defined goals and objectives for players to accomplish or overcome [50].

The "Future Narratives" (FNs) genre [29, 51] also plays a significant role in this new type of narrative in video games, allowing players to experience different possible endings. Video games are classified as "dynamic" [28] because they require active players to complete the gameplay and achieve goals, while also including non-player characters (NPCs) that use artificial intelligence (AI) as dynamic elements. As dynamic, actively nodal media [28], video games have a special connection or interaction with players, giving them more agency than any other medium. Within the limits of the game, a player can make decisions in what are called "nodal situations" to create and pursue their desired path. The nodal agency creates interactivity in video games [28, 29]. Additionally, Domsch [28] argues that the appeal of games lies in their agency bonus, as they imply choice and, therefore, different outcomes. Games classified as "emergent" by Juul [52] offer a higher level of openness and complexity. It is unclear whether FNs offer a greater degree of openness within this range of definition [28, 51, 52]. At their core, games are interactive and typically designed to start with a rush of excitement and control/agency for the player to have power over intense action from the beginning [53, 54]. With agency, the user is also given freedom to navigate the story space and world, create their character, change perspectives and beliefs, and experience various interactive experiences and interactions in-game [55]. In the environments created in interactive storytelling narratives, agency is divided into two aspects: the player's sense of control and the empowerment of story characters and events [56]. Although not all video games with a narrative have an interactive one, Ince [53] argues that interactive narrative is an experience where the narrative unfolds based on the participant's actions, and in video games, this is seen through the player's choices or actions. The interactivity of these narratives should convince players that they are in control of their experience, making their gameplay and existence in that fantasy world more meaningful [57].

3   Immersion within Video Games

Nordin [58] conducted a study that examined immersion as a cognitive sense of "being in the game" and focused on experimenting with players' perception of time during a game session. Both immersion and players' time perception are quite sensitive. Players often seem to be aware of the time they are in-game, even when immersed in the story, but they choose to ignore the amount of time they spend during the gaming session [58]. Jennett et al. [40] also conducted a study exploring three different features of immersion: lack of awareness of time, loss of awareness of the

real world, and involvement and a sense of being in the task environment. The study showed that players who were more intensely immersed in a game experienced a decline in performance when they returned to their real-world tasks, indicating that they needed a period of time to adjust back to reality [40]. In terms of storytelling in video games, Felizol [59] conducted thorough research on the influence of narrative in video games, player immersion, and its impact on the player as an entertainment consumer. His research focused on the specific game *Heavy Rain* [10] and used it as a case study with a sample of individuals. While mainly focusing on the narrative component, Felizol also touched on gaming elements such as immersion in players and used 118 participants to help him analyse how the narrative influences player immersion within the interactive genre of *Heavy Rain* gameplay. The conclusion reached was that this type of video game, within the interactive range, is far from becoming obsolete and will likely continue to attract an increasing number of interested players as it explores a type of storytelling that is capable of being more immersive and providing more participation and impact to the player. Felizol identified narrative, sound effects, characters, cyberspace, points of view, and the transmedia effect as the main elements that "create" and deepen immersion in a video game [59].

4   Localisation within Video Games

The field of game localisation, a vibrant area within Translation Studies, initially garnered attention in the late 1990s and has since significantly grown. The last decade has seen a substantial increase in diverse research outputs such as books, articles, dissertations, aiming to shed light on this relatively new domain [60]. A key focus within this research is reception studies, exploring player experiences and urging the need for more work in this area [61]. Works by Mangiron and O'Hagan further enrich this field, detailing the goal of game localisation to create a game version that retains the original's appeal, feeling, and gaming experience, thereby ensuring a shared excitement and enjoyment for the story across different languages and cultures [27].

Moreover, Bormann et al. [62] broaden the research scope by examining the less explored effects of narrative and contextual game elements on player immersion and need satisfaction. They find that in-game storytelling enhances immersion and autonomy, and relatedness need satisfaction, adding a new dimension to game localisation studies. In addition to these, Mangiron and O'Hagan [27] introduce the concept of "transcreation" in the RPG genre when translated into different target languages. This technique provides translators with some creative freedom while still maintaining some boundaries, as evidenced in the English localisation of *Final Fantasy XIV* [63], offering an entertaining experience to players in various markets without distorting the source idea and message. Collectively, these studies underscore the emerging importance of game localisation within Translation Studies, its pivotal role in enhancing player experiences, and the promising avenues for future research.

5   The RPG in Study – *The Witcher III: Wild Hunt*

Role-Playing Games (RPGs) are a popular genre in the world of gaming [64–67]. They are known for their complex, interactive storylines and rich narratives, which make them a prime example of translation and localisation challenges. Translators working on RPGs must be creative, much like writers creating a story from scratch [27, 42]. *The Witcher III: Wild Hunt* is a 2015 action RPG developed and published by CD Projekt. It is the third game in the series and features an open world with a third-person perspective. Maziarz and Onik [43] identified this game as having a rich, compelling narrative filled with jokes, puns, songs, customs, and other cultural references. The game was released in multiple languages, including English, German, French, Brazilian-Portuguese, Russian, Japanese, Spanish, Italian, Korean, Chinese, Czech, Hungarian, Arabic, and Turkish. In an interview, Szwed [68] stated that "*there is no original language*" for *The Witcher III*, as all languages are developed simultaneously, and that "*Polish and English are probably the richest on easter eggs*". The storytelling in video games, such as *The Witcher III: Wild Hunt*, is a key element that can make the gameplay immersive and enjoyable for players. The storytelling in these games often involves a combination of elements like humour and folklore, which can be challenging to translate into other languages or cultural contexts. Vickery [67] explored how players interact with the English narrative in this videogame and found that participants described their interactions in three ways: passive interaction, active interaction, and dialogue choices. The authors also identified two types of narrative structures within the game: linear and branching, and found that players interacted with the story even while performing tasks outside the main quest. The semantic layer of a game, which includes idiomatic expressions, sayings, slang, and jokes, can be difficult to translate effectively, as the desired comic effect or meaning may be lost in the target language. In these cases, it is necessary to adapt the source expression to the target context, but this can also potentially impact the player's understanding or enjoyment of the game [43].

6   Methodology

This study probes the effects of storytelling and localisation on player immersion in the RPG genre, using *The Witcher III: Wild Hunt* in its English and Brazilian-Portuguese versions as a lens. We pursued answers to two principal research questions: (i) *How does storytelling enhance immersion and enjoyment in RPGs?* (ii) *How does localisation modulate a player's bond with the story and game?* A quasi-experimental design informed our approach.

From a varied recruitment pool within the Portuguese student communities, 126 participants with previous gaming experience embarked on our study. Participants were required to complete and sign a consent form prior to their involvement, thereby confirming their voluntary and informed participation in the study. Notably, however, only 41 participants, with a demographic spread including both genders and ages ranging from 17 to 35, saw the procedure through to completion. The remaining candidates, for unspecified reasons, ceased participation post-gameplay.

To mirror an authentic gameplay environment and stimulate genuine experiences, participants played from their homes using their personal gaming setups. Each engaged with the game for two hours, an hour each in English and Brazilian-Portuguese. Following each session, participants filled out the Game Experience Questionnaire (GEQ) – the core module [69]. This comprehensive tool evaluates game experience across seven dimensions: 1) *competence*, 2) *sensory and imaginative immersion*, 3) *flow*, 4) *tension/annoyance*, 5) *challenge*, 6) *negative affect*, and 7) *positive affect*. The GEQ's quantitative insights greatly augmented our understanding of player perceptions and dovetailed with the qualitative gleanings from the subsequent interviews.

To neutralise potential biases, participants were randomly assigned to two cohorts: Group A began with the English version, and Group B commenced with the Brazilian-Portuguese version. The heart of our qualitative exploration was the post-gameplay semi-structured interviews. These discussions were aimed at extracting deeper insights into participants' gameplay experiences, discerning their preferences between the versions, and understanding their immersion depths.

Finally, the gathered qualitative responses underwent a thematic analysis [70], pinpointing common themes and patterns in the participants' responses.

Table 1. Age of the participants recruited from the local university and video game associations.

Age	European Portuguese	Brazilian Portuguese	Iranian	Ukrainian	Total
17-20	8	1	0	0	9
21-25	13	2	0	1	16
26-29	9	5	1	0	15
31-35	0	1	0	0	1
Total	30	9	1	1	41

7 Results

This section delineates the findings derived from the post-game questionnaires and the conducted interviews. A significant observation from our study centred on the choice of Brazilian-Portuguese, as opposed to European-Portuguese, in *The Witcher III*. This distinction notably influenced the immersion levels for several players. The game's localisation in Brazilian-Portuguese was influenced by Brazil's more substantial demographic footprint compared to Portugal. Ideally, to match the language variant, a preponderance of participants should have been Brazilian. However, our sample only encompassed 9 Brazilian participants out of the 41 (Table 1). It's imperative to factor in this limitation and its potential implications for immersion while appraising our findings.

7.1 Questionnaires

We checked the normality of the data. All dependent variables (all of 7 components reported above) were not normally distributed (p<0.005), hence we applied non-parametric tests – *Wilcoxon signed rank test*. This test showed us that: (i) Values of *sensory and imaginative immersion* are significantly lower on the Brazilian-Portuguese version (mean 2.84; mdn 3.00) than on the English version (mean 3.54; mdn 3.67) – this difference is significant, Z=-3.801, p<0.001, r=-0.59; (ii) Values of *flow* are significantly lower on the Brazilian-Portuguese version (mean 2.02; mdn 2.20) than on the English version (mean 2.77; mdn 2.80) – this difference is significant, Z=-3.560, p<0.001, r=-0.56; (iii) Values of *positive affect* are significantly lower on the Brazilian-Portuguese version (mean 2.85; mdn 3.00) than on the English version (mean 3.60; mdn 3.80) – this difference is significant, Z=-4.067, p<0.001, r=-0.64; (iv) Values of *tension/annoyance* are significantly higher on the Brazilian-Portuguese version (mean 0.80; mdn 0.33) than on the English version (mean 0.37; mdn 0.00) – this difference is significant, Z=-2.255, p=0.024, r=-0.35; (v) Values of *negative affect* are significantly higher on the Brazilian-Portuguese version (mean 1.32; mdn 1.25) than on the English version (mean 0.74; mdn 0.75) – this difference is significant, Z=-2.975, p=0.003, r=-0.46; (vi) Values of *competence* and *challenge* between both versions are non-significant (p>0.05).

In other words, our findings show that when playing the Brazilian-Portuguese version of the game, participants were unable to fully immerse themselves in the game, feeling a lack of enjoyment and positive emotions such as joy and interest. Instead, they experienced negative emotions like irritation, frustration, anxiety, stress, sadness, and worry. However, there was no difference in the perceived level of challenge or in the characteristics and skills that enhance the performance of the game between the Brazilian-Portuguese and English versions.

7.2 Semi-structured Interviews

Our analysis was divided into two categories: overall reactions to each version and ease of immersion in the game. The results of this analysis are presented below.

Overall Reactions. Regarding the English version, participants are interested in exploring all aspects of the game, including the carefully chosen accents, cut scenes, Easter eggs, game dynamics and interactivity, and unexpected quests. The satisfaction of these players revolves around the fact that English is a widely known, fantasy language that is effective at evoking greater immersion feelings, as well as the intricate and meticulously good design that the studio used to incorporate and connect the narrative, world, characters, game interactions, and choices into what players consider "*one of the best RPGs of all time*."

Regarding the Brazilian-Portuguese version, participants describe it as beneficial for non-English speaking individuals and as a helpful tool for understanding English, as it allows users to compare the Portuguese text with the English version**.** Overall, these players express satisfaction with the version, noting that the translation and adaptation of lore and names is equally well-done. However, some players also report

that the immersion in this version was smaller in some instances due to certain aspects such as the dialogues, cut scenes, or voice acting. They feel that the Brazilian-Portuguese version is less polished or finished compared to the English version, and they perceive a lack of effort in the specific adaptation and translation of names. Nonetheless, they still consider the Brazilian-Portuguese version to be a good result.

Factors that Influenced Players' Immersion. Of the 41 participants, 61% reported experiencing a significant impact on their immersion while playing the game. The notion that English is a key language in gaming, particularly in fantasy worlds, enhances immersion in this context. Even though some participants had a preference for the Brazilian-Portuguese language, they still felt a stronger connection to English in this universe because it just "clicked" and made sense. These comments on language corroborate previous feedback indicating that English serves as a more "natural" language for fantasy worlds and magic, and players tend to develop a stronger connection to it, increasing their immersion while playing the game.

Sounds, music, and language all affected the immersion of different players to varying degrees. While English may be the preferred language overall, Brazilian-Portuguese was also seen as a positive and unexpected change that attracted some players. In general, players appreciated the accents, regionalization, and expressions specific to each language and the quality of the voice acting. Several players mentioned the dialogues, noting that they were faster-paced in Portuguese compared to English. However, there were also complaints about the fluidity and pacing of the dialogues in English, which felt more natural to some players.

Factors that Blocked Players' Immersion. There is a duality in the comments regarding the translation or adaptation of the written content (including lore). Some participants appreciate these changes, while others struggle to connect with or understand the need for them or simply do not like how they were implemented. Negative comments tend to emerge when players report being unable to engage with the Brazilian-Portuguese narrative due to the language itself and the weak adaptation. It is plausible that these issues could stem from the fact that Brazilian-Portuguese was not their native linguistic variation, a possibility that should be considered and potentially explored further. There is also an underlying factor where individuals who have read the books in English but have never played the game struggle to reconcile the changes made in the Portuguese version. As with all translation work, there is a risk of information being lost or not conveying the same meaning. In the Brazilian-Portuguese version, players felt that certain jokes, references, or puns were lost or inconsistent. Confusion with the inventory or tutorial when switching between languages and differences in character behaviour, voice, tone, or "posture" between the languages also influenced players' feelings and perceptions. The speed of the dialogues and voice-acting in one language also posed a barrier for some players. Dubbing and translation are particularly relevant in this context. Additionally, fewer distractions can lead to greater immersion for players in English, enabling them to become more fully immersed in the game and relate more to the characters and lore.

Despite having Portuguese as their native language or not, the break in immersion is more pronounced in the Brazilian-Portuguese version, not only due to the language

itself but also due to specific characteristics associated with it. Some players felt that the Brazilian-Portuguese version was rushed. Some comments indicated that Brazilian-Portuguese was easier to understand than old-time English and that one could become accustomed to it, while others still confirmed that the shock was there and the block remained, separating the English version as superior in terms of voice-acting. The influence of well-known English voices played a role in the differentiation between languages for some players. Additionally, both the fantasy and sci-fi genres have a strong association with the English language, and Brazilian-Portuguese is not as relatable or believable in these genres for some players. There is a repetition of comments regarding the "original" language and how the Brazilian-Portuguese version falls short because it is not the English version, which is considered the "original." English may be easier to distinguish in a crowd for some players, while in Brazilian-Portuguese, they tend to become more disoriented. Players have identified several aspects that influenced their experience, such as the setting of the game (fantasy) not making sense in Brazilian-Portuguese, making it harder to understand and become immersed in the narrative. The tutorial instructions could have been clearer in both languages to facilitate understanding. Some players also felt that the menu translation could have been better, while others had the opposite opinion. The voice-acting in the Brazilian-Portuguese version did not match the tone of the game setting and the backgrounds and personalities of the characters as well as the English voices.

The use of Brazilian-Portuguese rather than European-Portuguese had a significant impact on the immersion factor for some players. There are specific differences worth mentioning, with some players also noting that the Brazilian-Portuguese version was easier to understand during the tutorial. However, the language – whether European or Brazilian – broke the same immersion felt in English for some players. The fact that we are dealing with Brazilian-Portuguese instead of European-Portuguese is relevant because for some players, the immersion break occurs due to this aspect, leading some to state that they would only play the game in Brazilian-Portuguese as a last resort or option.

Factors that Did Not Have an Impact. Only three people, representing 7% of the total sample, reported not feeling that language had a significant impact on their experience. There is also a feeling of "neutrality" towards a preferred language, where some individuals do not perceive a distinction between the languages and report that their immersion while playing the game remained the same in both versions. There were even comments that did not consider immersion to be a factor and saw language as unimportant in this context.

8 Discussion

Language adaptation barriers and substitutions of lore due to the localisation process may cause players to miss or misunderstand the intended content and message. This has a chain reaction, first affecting the storytelling aspect of the video game. Consequently, it impacts the level of immersion that a player experiences during

gameplay. Based on the findings from our analysis, we will now discuss the research questions proposed earlier in the paper.

How does storytelling enhance immersion and enjoyment in RPGs? In the case of the RPG genre, it has been established that storytelling is a significant and essential component of the development of this genre. Given this fact, the stronger the storytelling element in an RPG (and potentially any video game), the greater the immersion the player will feel, leading to increased enjoyment and satisfaction with the gameplay experience. While we are specifically considering the RPG genre in this research, certain statements can also be applied to other genres and video games. In the RPG genre, players tend to report a stronger sense of immersion and "belonging" when they are pleased with and connected to the storytelling that accompanies their gameplay, resulting in more positive feedback and evaluation of the overall video game and experience. This genre is heavily dependent on narrative, and every element can be linked to storytelling as a complementary or crucial component in conveying the game's story. Players have access to large amounts of text, dialogue, options, mechanics, music, in-game world and character interaction, cinematics, and tasks that enhance the story's role in each step of the game's development. As such, it can be considered "the backbone" of the genre, allowing for uninterrupted gameplay flow and an enhanced sense of immersion that transports players to the virtual reality created in-game.

Supporting our findings, Bormann et al. [62] underscore the crucial role of storytelling in video games, specifically emphasizing its impact on player immersion. Their research identifies in-game storytelling as a facilitator of immersion, subsequently enhancing autonomy, relatedness need satisfaction, and affective theory of mind. Their study highlights the interconnectedness of storytelling, immersion, and player satisfaction, which aligns with our observation of a disrupted immersive flow due to localisation issues in the Brazilian-Portuguese version of the game. Consequently, this disruption potentially hinders the satisfaction and overall gaming experience of players, as implied by Bormann et al.'s findings.

How does localisation modulate a player's bond with the story and game? Based on the results of the study, it is clear that localisation has a significant impact on the connection users develop with the story and the video game. As observed through the English and Brazilian-Portuguese localisations, players feel the significant impact of each localisation component on the changes in the same video game. As confirmed throughout the study, the localisation component in the English version helped users create a stronger connection and develop a deeper affection for the characters and the story of the video game. In contrast, the localisation in the Brazilian-Portuguese version was reported to be more negatively impactful, as it disrupted players' attention more easily, preventing them from forming the same level of connection and immersion in the story and video game as they did with the English version. The immersive flow created by both versions differed significantly, with the Brazilian-Portuguese version breaking more quickly and affecting players' ability to emotionally connect with the story of *The Witcher III: Wild Hunt*. However, from a positive perspective, the localisation experience enhanced the flow of the story, the

immersion, and the bond and association players formed with the video game and its story.

9   Design Recommendations

In addressing the research question of whether the storytelling component and the localisation process impact player immersion in video games, we have identified two prominent factors that appear to significantly influence this immersion. These are *Language and Culture* and *Voice-acting*. The former encompasses the challenge of translating specific expressions, jokes, proverbs, folklore, local legends, and game lore, with the risk of losing meaning or context. The latter, on the other hand, pertains to the critical role of voice-acting in establishing the character's tone, pace, and overall mood, with variations potentially causing a disconnect between the player and the character. These two factors necessitate special attention during localisation to optimally enhance the storytelling element, the game's interpretation, and ultimately the player's immersion. As a contribution to this research, we propose a set of design recommendations to enhance and further intensify player immersion during gameplay (Tables 2 and 3). We believe these considerations should be thoroughly considered during the localisation stage of a game's development process, as they could enhance the immersive quality of the video game for the player. We will explore each of these factors individually, using the English/Brazilian-Portuese case as an example, and present different possibilities outside of this study.

Table 2. Design recommendations for enhancing player immersion in role-playing video games: a focus on storytelling, language, culture and player engagement.

Topic	Comprehensive Design Recommendations on Language and Culture
Deep cultural research	Investigate the cultures, histories, and local backgrounds of both the source and target languages thoroughly. This knowledge forms the backbone of effective localisation and ensures that nuances, sensitivities, and particularities are respected and understood.
Understanding linguistic variations	Recognize the informal or colloquial aspects of a language, considering the nuances not only within different regions of the same country but also across distinct countries or territories. For instance, while our study prominently covers Brazil and Portugal, this principle is universally applicable, including linguistic territories like the UK, Ireland, the US, Australia, Spain, and Latin American countries.
Audience profiling	Gain a comprehensive understanding of the game's target audience. This includes recognizing the differences and similarities across various age groups and social strata, ensuring that the game's content is relatable and engaging to its intended players.
Leveraging in-house expertise	Make use of in-house resources, particularly native speakers of the languages in focus, to amass further insights, feedback, and understanding. Their firsthand experience and cultural perspective can be invaluable in the localisation process.
Consistency in game elements	When determining aspects like character names, lore, or backstory, it is essential to look at several factors. These include the game's narrative, its audience, any previous sources of inspiration, and the desired consistency across various translations or adaptations of the game. This ensures that the game remains cohesive and immersive across different languages and cultural contexts.

9.1 Language and Culture

One aspect to consider within *Language and Culture* (Table 2) is the translation and transmission of specific expressions, jokes, proverbs, folklore, local legends, and lore in the video game. Language differences can both enhance and hinder immersion in video games. However, when translating from one language to another, there is always a risk of losing information or meaning during the process. Expressions, regionalisms, jokes, and proverbs are particularly prone to this outcome, as they convey specific intentions and purposes within the source language, but when translated into the target language, they may undergo changes or adaptations that either transmit the same effect and idea as the original or lose their initial meaning or impact entirely. The player may not notice this lack of understanding and continue with the gameplay, or they may experience a disruption in understanding as they try to relate it to the context of the situation. To address this issue, which can greatly affect the player's understanding and connection with the video game and therefore their immersion during gameplay, we recommend that developers invest more in the localisation department of any game. It is not only a matter of being a professional in the field, but also having thorough research and understanding of the cultural context and history of each language to support the choices made when translating and adapting game material.

To ensure a successful translation or adaptation of game material, we recommend conducting in-depth research on the cultures, histories, and local contexts of both the source and target languages. This research should also extend to the informal or colloquial aspects of the language, which are often specific to locals and can vary not only within different regions of the same country, but also across different countries that share the same language, often referred to as "locals" in the software industry.

The translator should have a thorough understanding of the languages used in the game and the target audience who will be playing it. This understanding should encompass the differences and similarities among various age groups and social statuses within that audience. While this understanding of language nuances and cultural expressions can be deepened in-house, with the studio's developers and employees from diverse nationalities contributing to the understanding, it is important to note that the current trend often leans towards outsourcing localisation. In such cases, the outsourcing entity must ensure a comprehensive knowledge transfer, including cultural nuances and colloquial expressions, to the contracted translator or localiser. The more information gathered and shared, the more equipped the translator or localiser will be to effectively adapt or translate from one language to another, irrespective of whether the localisation process is handled in-house or outsourced.

Folklore, language familiarity, and the translation process can all impact the narrative of a video game. English is often the standard language in the video game industry, but players may enjoy a game more when it is in a different language or relates to the story's setting. For medieval or archaic settings, English is often a good choice, particularly for fantasy, sci-fi, or medieval games. This study found that folklore, including local legends, should generally be maintained or changed minimally in translation to maintain the mood of the story. This includes names of characters, creatures, locations, and items. The translation of *The Witcher III: Wild Hunt* into Brazilian-Portuguese was found to be inconsistent and disruptive to the

flow of the game. In order to avoid player confusion or frustration, translation should strive for consistency. This means that all game-specific terminology should be handled uniformly across the game, either maintaining the original terms or consistently translating them into equivalent terms in the target language. Changing major lore components, such as names, can significantly decrease immersion and confuse players, particularly if they are familiar with the original version of the game. To increase immersion, the decision on how to translate should be based on the game itself, the audience, any inspiration material, and the desired consistency between translations. Not all translations or adaptations negatively impact a game or player immersion. It is important to pay extra attention to these choices, regardless of the "original" language of the game.

Table 3. Design recommendations for enhancing player immersion in role-playing video games: emphasis on voice-acting and localisation.

Topic	Comprehensive Design Recommendations on Voice-acting
Sound quality and consistency	Carefully review the sound quality of all languages, whether for characters or general audio elements, in the studio. This helps to maintain consistency with the source language of the game and prevent quality discrepancies between different languages and characters. Avoid significant changes in sound attributes (e.g., high, low, rough, smooth) that may distract players and disrupt their immersion into the game world.
Character accent and localisation	Put in diligent research and effort to select accents that best suit each language the game is localised into. Understandably, there is a challenge in finding equivalent or similar accents across different languages due to varying sociocultural connotations. Exercise extra care when selecting accents. These should encapsulate the same sentiment and context (such as social status, region, origin, species, rank) as in the original version. In certain situations, translating the accent via a sociolect or idiolect might be more effective in preserving its original function. It is essential that the chosen accent aligns with the game's situation, character, and the linguistic background of the target language.
Dialogue pace	Regularly review the pace of dialogues across all languages. When needed, adapt the translation to resonate with the story's rhythm while ensuring that the target language still sounds as natural as possible.
Dual language experience	Make efforts to minimize the "disconnect" players might feel when they hear the same character voiced in two different languages. This can be achieved by finding tones and attitudes that convey a similar vibe and intonation across languages. However, it is worth noting that most players will likely engage with the game in only one language, so this aspect might not often affect the general player experience.

9.2 Voice-acting

Voice acting was a highly criticized and commented upon aspect of this study (Table 3) due to the significant differences in character voices, tones, accents, and overall dialogue pace that impacted mood and immersion during gameplay. The actor or actress, as well as the phonetics and intonation of the language, can all affect a character's voice in a different language, causing a disconnect between the player and the character and hindering identification with the character. Accents can add depth to a game, but if not adapted and translated properly, players may have difficulty associating them with a certain region or social status, reducing their immersion in the story. The diversity and prominence of accents in *The Witcher III: Wild Hunt* in English created a larger impact and difference when compared to other localised languages.

The industry process of translating voice performances often interchangeably referred to as "voice-over" or "dubbing," should strive to recruit actors who can closely mimic the tonality and vocal mannerisms of the original characters. This careful emulation of the characters' personalities is pivotal in mitigating the potential "shock" players might experience when hearing the same character speak in different languages. If the vocal tone and delivery are consistent across translations and convey similar emotional cues, players are less likely to feel a disconnection with the character when playing in different languages. The sound quality should also be carefully reviewed for all languages to maintain consistency with the source language and avoid discrepancies in quality between different languages and characters. However, dialogue pace involves more than just the voice. For example, Portuguese, a romance language, tends to have a slower rhythm than English. Therefore, the dialogue pace should be set to match the story's rhythm and be adapted to the target language as naturally as possible, while still fitting into the same scenes or situations as the original language. This may depend on the translator's and developer's decisions to fit the dialogue into the same space and duration in different languages.

As a closing note, it is important that additional attention and effort be dedicated to identifying suitable accents for each language a game is localised into. The localisation process should aim to research and select accents or, as pointed out, sociolects and idiolects that best fit the game and the background of the target language. This should be done while ensuring the context and emotional resonance of the original accents are maintained. Such care in choosing accents will help players connect with the game's story, characters, and context, despite differences in tone, voice, and posture between languages. Players should be able to associate the character's voice with their personality, habits, background, origin, and overall story development and context, maintaining a continuity of experience as if interacting with the original voice work. However, it is essential to keep in mind that this process can be complex and challenging, and a notion of exact equivalence might be too restrictive.

10   Conclusions

This research, with its emphasis on a particular video game within a specific genre and two localised languages, offers just a glimpse into the expansive realm of storytelling, immersion, and localisation possibilities in the video game industry. The findings reveal that elements of localisation, especially voice-over and translation adaptations, profoundly impact players' interpretation of and connection to the narrative. The findings align with existing studies, emphasising the complex relationship between translation, localisation, and gameplay experience [27, 28, 60, 61].

In this dual language context of English/Brazilian-Portuguese, these components pose significant challenges to immersion, producing a variety of responses and influencing both the game and player immersion in different ways. This research expands upon previous studies by offering a nuanced view of localisation's role in influencing immersion, particularly within the RPG genre [27, 28, 62]. The outcomes

of this study have laid the foundation for design recommendations that seek to enhance video game immersion through language and voice-acting. They echo existing literature that highlights the importance of careful and considered localisation in maintaining players' sense of immersion and connection to the game world [27, 28, 59, 62]. Moreover, they underscore the importance of raising awareness among game designers about the crucial role of these aspects in reinforcing and amplifying player immersion during gameplay.

While this study has offered valuable insights, it also underscores that there is a vast amount to explore and analyse in the interplay between storytelling, immersion, and localisation. This is particularly true in the context of *The Witcher III: Wild Hunt* and the RPG genre, but also extends to different video game genres and examples. The examination of these intertwined elements has shown itself to be a worthy subject for ongoing research and has potential implications for design development and consideration in the broader field. These findings, when combined with future research, can contribute to an evolving understanding of the complex interaction between narrative, player immersion, and localisation in video games.

11   Limitations and Future Research Directions

While our study has offered meaningful insights into the relationship between storytelling, immersion, and localisation, there are several limitations that warrant consideration. To start, our analysis was anchored on a single video game, *The Witcher III: Wild Hunt,* within a particular genre, RPG. As such, our findings might not fully extend to other video game genres [50, 51]. Future studies should consider expanding the scope to different genres to determine whether the observed relationships hold across a broader spectrum of games.

The observed gender imbalance, which leans predominantly towards male participants, is not entirely indicative of broader gaming demographics in Portugal or Europe; this disparity, largely attributable to voluntary participation, presents a limitation.

Additionally, negative comments appeared to surge when players found it challenging to engage with the Brazilian-Portuguese narrative due to both the language itself and perceived weak adaptation. This could potentially stem from the fact that Brazilian-Portuguese was not their native linguistic variation; an aspect future research could explore in depth. Moreover, we noticed that players who had previously read the books in English but had not played the game struggled with changes made in the Portuguese version, suggesting a further area of research.

Our study also primarily focused on the impact of voice-over and translation adaptations as components of localisation. However, localisation encompasses a wide range of elements, including cultural adaptation, characterisation, and humour translation. Future research could examine these areas for a more holistic understanding of localisation's influence on player immersion [60, 61].

Lastly, we collected data from a total of 41 participants and their feedback, while valuable, is inherently subjective. Personal factors such as gaming experience, individual preferences, and cultural background could have influenced the responses.

Future studies might consider complementing subjective feedback with objective measures, such as biometric data or other quantitative parameters, to deliver a more comprehensive view of the gaming experience [40, 58].

Despite these limitations, our study provides a solid base for future research in this field. By addressing these points, subsequent studies can continue to enrich our understanding of storytelling, immersion, and localisation in video games.

CRediT author statement. Vanessa Cesário: Methodology, Validation, Formal analysis, Writing – original draft preparation, Writing – review and editing, Visualization, Supervision, Funding acquisition. **Mariana Ribeiro**: Conceptualization, Investigation, Formal analysis, Writing – original draft preparation. **António Coelho**: Supervision.

References

1. deHaan J., Diamond J.: The experience of telepresence with a foreign language video game and video Proceedings of the 2007 ACM SIGGRAPH symposium on Video games. pp. 39–46. Association for Computing Machinery, New York, NY, USA (2007) https://doi.org/10.1145/1274940.1274951

2. Gómez-Maureira M.A., van Duijn M., Rieffe C., Plaat A.: Academic Games - Mapping the Use of Video Games in Research Contexts Proceedings of the 17th International Conference on the Foundations of Digital Games. pp. 1–10. Association for Computing Machinery, New York, NY, USA (2022) https://doi.org/10.1145/3555858.3555926

3. Klarkowski M., Johnson D., Wyeth P., Smith S., Phillips C.: Operationalising and Measuring Flow in Video Games Proceedings of the Annual Meeting of the Australian Special Interest Group for Computer Human Interaction. pp. 114–118. Association for Computing Machinery, New York, NY, USA (2015) ttps://doi.org/10.1145/2838739.2838826

4. Kultima A.: Game design research Proceedings of the 19th International Academic Mindtrek Conference. pp. 18–25. Association for Computing Machinery, New York, NY, USA (2015) https://doi.org/10.1145/2818187.2818300

5. Nóbrega F., Gomes E., Vasanth H., Ferreira H., Cesário V., Caetano P., Mendez P., De Pontes J., Spicci G.: Designing Multi-Gateway Interactions In A Multi-Player Strategy Game Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems. pp. 226–229. ACM, New York, NY, USA (2017) https://doi.org/10.1145/3027063.3048411

6. Wardrip-Fruin N.: Games, Hypertext, and Meaning Proceedings of the 31st ACM Conference on Hypertext and Social Media. p. 3. Association for Computing Machinery, New York, NY, USA (2020) https://doi.org/10.1145/3372923.3404477

7. Cesário V., Radeta M., Matos S., Nisi V.: The Ocean Game: Assessing Children's Engagement and Learning in a Museum Setting Using a Treasure-Hunt Game Extended Abstracts Publication of the Annual Symposium on Computer-Human Interaction in Play. pp. 99–109. ACM, New York, NY, USA (2017) https://doi.org/10.1145/3130859.3131435

8. Cesário V., Trindade R., Olim S., Nisi V.: Memories of Carvalhal's Palace: Haunted Encounters, a Museum Experience to Engage Teenagers in Lamas, D., Loizides, F., Nacke, L., Petrie, H., Winckler, M., and Zaphiris, P. (eds.) Human-Computer Interaction – INTERACT 2019. pp. 554–557. Springer International Publishing (2019) https://doi.org/10.1007/978-3-030-29390-1_36
9. Cesário V., Olim S., Nisi V.: A Natural History Museum Experience: Memories of Carvalhal's Palace – Turning Point in Bosser, A.-G., Millard, D.E., and Hargood, C. (eds.) Interactive Storytelling. pp. 339–343. Springer International Publishing, Cham (2020) https://doi.org/10.1007/978-3-030-62516-0_31
10. Videogame: Heavy Rain, developer: Quantic Dream, (2010)
11. Videogame: The Walking Dead, developer: Telltale Games, (2012)
12. Videogame: Journey, developer: Thatgamecompany, (2012)
13. Videogame: Borderlands 2, developer: Gearbox Software, (2012)
14. Videogame: Mass Effect 3, developer: BioWare, (2012)
15. Videogame: Max Payne, developer: Rockstar Games, (2008)
16. Videogame: Guild Wars, developer: ArenaNe, (2005)
17. Videogame: Assassin's Creed III: Liberation, developer: Ubisoft, (2012)
18. Videogame: Darksiders II, developer: Vigil Games, (2012)
19. Videogame: Sleeping Dogs, developer: Square Enix, (2012)
20. Videogame: Persona 4, developer: Atlus, (2008)
21. Videogame: Dear Esther, developer: The Chinese Room, (2012)
22. Videogame: Dishonored, developer: Arkane Studios, (2012)
23. Videogame: XCOM - Enemy Unknown, developer: Firaxis Games, (2012)
24. Videogame: The Last of Us - Part I, developer: Naughty Dog, (2013)
25. Videogame: Dragon Age - Inquisition, developer: BioWare, (2014)
26. Crawford C.C.: Chris Crawford on Interactive Storytelling, New Riders, Berkeley, Calif.?, (2012)
27. Mangiron C., O'Hagan M.: Game localisation: unleashing imagination with 'restricted'translation The Journal of Specialised Translation, 6, pp. 10–21 (2006)
28. Domsch S.: Storyplaying: Agency and Narrative in Video Games, De Gruyter, (2013) https://doi.org/10.1515/9783110272451
29. Somerdin M.: The Game Debate: Video Games as Innovative Storytelling Presented at the (2016)
30. Aarseth E.: A Narrative Theory of Games Proceedings of the International Conference on the Foundations of Digital Games. pp. 129–133. ACM, New York, NY, USA (2012) https://doi.org/10.1145/2282338.2282365
31. Agrawal S., Simon A., Bech S., Bæntsen K., Forchhammer S.: Defining Immersion: Literature Review and Implications for Research on Audiovisual Experiences JAES, 68, pp. 404–417 (2020) https://doi.org/10.17743/jaes.2020.0039
32. Bernal-Merino M.A.: The Localisation of Video Games (2013) https://doi.org/10.4324/9781315752334
33. Cesário V., Coelho A., Nisi V.: Enhancing Museums' Experiences Through Games and Stories for Young Audiences Interactive Storytelling. pp. 351–354. Springer, Cham (2017) https://doi.org/10.1007/978-3-319-71027-3_41
34. Cesário V., Coelho A., Nisi V.: Co-designing Gaming Experiences for Museums with Teenagers in Brooks, A.L., Brooks, E., and Sylla, C. (eds.) Interactivity, Game Creation, Design, Learning, and Innovation. pp. 38–47. Springer International Publishing (2019) https://doi.org/10.1007/978-3-030-06134-0_5
35. Cesário V., Coelho A., Nisi V.: Design Patterns to Enhance Teens' Museum Experiences 32nd British Human Computer Interaction Conference. pp. 1–5 (2018) https://doi.org/10.14236/ewic/HCI2018.160

36. Cesário V., Nisi V.: Designing mobile museum experiences for teenagers Museum Management and Curatorship, (2022) https://doi.org/10.1080/09647775.2022.2111329
37. Cesário V., Nisi V.: Designing with teenagers: A teenage perspective on enhancing mobile museum experiences International Journal of Child-Computer Interaction, 33, pp. 100454 (2022) https://doi.org/10.1016/j.ijcci.2022.100454
38. Green A.M.: Storytelling in Video Games: The Art of the Digital Narrative, McFarland & Company, Jefferson, North Carolina, (2017)
39. Hevia C.M.: Video Games Localisation: Posing New Challenges to the Translator Perspectives, 14, pp. 306–323 (2007) https://doi.org/10.1080/09076760708669046
40. Jennett C., Cox A.L., Cairns P., Dhoparee S., Epps A., Tijs T., Walton A.: Measuring and defining the experience of immersion in games International Journal of Human-Computer Studies, 66, pp. 641–661 (2008) https://doi.org/10.1016/j.ijhcs.2008.04.004
41. Lindley C.: Story and Narrative Structures in Computer Games 1 Presented at the Bushoff, Brunhild. Ed. (2005)
42. Mangiron C.: Localizing Final Fantasy–bringing fantasy to reality LISA Newsletter Global Insider, 13, pp. 5 (2004)
43. Maziarz P., Onik D.: Cultural Barriers in Equivalence - The English Localization of the Video Game Wiedźmin 3: Dziki Gon Explorations, 7, pp. 45–57 (2019) https://doi.org/10.25167/EXP13.19.7.6
44. McKee R.: Story: substance, structure, style and the principles of screenwriting, ReganBooks, New York, (1997)
45. Murray J.H.: Hamlet on the Holodeck, updated edition: The Future of Narrative in Cyberspace, The MIT Press, Cambridge, Massachusetts, (2017)
46. Ryan M.-L.: Narrative as Virtual Reality 2, (2001)
47. Videogame: Witcher 3 - Wild Hunt, developer: CD Projekt RED, (2015)
48. Eskelinen M.: Towards computer game studies Digital Creativity, 12, pp. 175–183 (2001) https://doi.org/10.1076/digc.12.3.175.3232
49. Kreminski M., Wardrip-Fruin N.: Generative games as storytelling partners Proceedings of the 14th International Conference on the Foundations of Digital Games. pp. 1–8. Association for Computing Machinery, New York, NY, USA (2019) https://doi.org/10.1145/3337722.3341861
50. Solarski C.: A Storytelling Framework for Game Design, A K Peters/CRC Press, New York, (2017)
51. Bode C., Dietrich R.: Volume 1 Future Narratives: Theory, Poetics, and Media-Historical Moment, De Gruyter, (2013) https://doi.org/10.1515/9783110272376
52. Juul J.: Half-Real: Video Games between Real Rules and Fictional Worlds, The MIT Press, Cambridge, Mass, (2011)
53. Ince S.: Writing for Video Games, Methuen Drama, London, (2006)
54. Ip B.: Narrative Structures in Computer and Video Games: Part 1: Context, Definitions, and Initial Findings Games and Culture, 6, pp. 103–134 (2011) https://doi.org/10.1177/1555412010364982
55. Miller C.H.: A creator's guide to interactive entertainment, CRC Press, Boca Raton, (2019) https://doi.org/10.1201/9780429440045
56. Nakevska M., van der Sanden A., Funk M., Hu J., Rauterberg M.: Interactive storytelling in a mixed reality environment: The effects of interactivity on user experiences Entertainment Computing, 21, pp. 97–104 (2017) https://doi.org/10.1016/j.entcom.2017.01.001
57. Heussner T., Finley K.T., Hepler J.B., Lemay A.: The Game Narrative Toolbox, Routledge, (2015) https://doi.org/10.4324/9781315766836

58. Nordin A.: Immersion And Players' Time Perception in Digital Games, https://etheses.whiterose.ac.uk/7553/, (2014)
59. Felizol A.M.B.B.: A importância da narrativa nos jogos digitais: o caso Heavy Rain, https://ubibliorum.ubi.pt/handle/10400.6/7823, (2017)
60. Mangiron C.: Research in game localisation: An overview The Journal of Internationalization and Localization, 4, pp. 74–99 (2017) https://doi.org/10.1075/jial.00003.man
61. Mangiron C.: Reception studies in game localisation: Taking stock Reception Studies and Audiovisual Translation. pp. 277–296. John Benjamins (2018) https://doi.org/10.1075/btl.141.14man
62. Bormann D., Greitemeyer T.: Immersed in Virtual Worlds and Minds: Effects of In-Game Storytelling on Immersion, Need Satisfaction, and Affective Theory of Mind Social Psychological and Personality Science, 6, pp. 646–652 (2015) https://doi.org/10.1177/1948550615578177
63. Videogame: Final Fantasy XIV, developer: Square Enix, (2010)
64. Cyganiak O.: The witcher 3: the trail ACM SIGGRAPH 2015 Computer Animation Festival. p. 160. Association for Computing Machinery, New York, NY, USA (2015) https://doi.org/10.1145/2745234.2746990
65. Rabb A.: The witcher 3: wild hunt launch cinematic trailer ACM SIGGRAPH 2016 Computer Animation Festival. Association for Computing Machinery, New York, NY, USA (2016) https://doi.org/10.1145/2897841.2936757
66. Torok B.: The rendering features of the Witcher 3: wild hunt ACM SIGGRAPH 2015 Talks. p. 1. Association for Computing Machinery, New York, NY, USA (2015) https://doi.org/10.1145/2775280.2775287
67. Vickery N., Tancred N., Wyeth P., Johnson D.: Directing narrative in gameplay: player interaction in shaping narrative in the witcher 3 Proceedings of the 30th Australian Conference on Computer-Human Interaction. pp. 495–500. Association for Computing Machinery, New York, NY, USA (2018) https://doi.org/10.1145/3292147.3292201
68. Noclip - Video Game Documentaries: Translating & Adapting The Witcher 3, https://www.youtube.com/watch?v=Gxg5INjNopo, (2017)
69. IJsselsteijn W.A., de Kort Y.A.W., Poels K.: The Game Experience Questionnaire, Technische Universiteit Eindhoven, Eindhoven, (2013)
70. Braun V., Clarke V., Gray D. eds: Collecting Qualitative Data: A Practical Guide to Textual, Media and Virtual Techniques, Cambridge University Press, Cambridge, UK ; New York, NY, (2017) https://doi.org/10.1017/9781107295094