The Routledge Handbook of Audio Description

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Video games and audio description

Publication details


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Published online on: 07 Apr 2022

How to cite :- Carme Mangiron, Xiaochun Zhang. 07 Apr 2022, Video games and audio description from: The Routledge Handbook of Audio Description Routledge

Accessed on: 22 Nov 2023


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1. Introduction and definitions

The digital software entertainment industry, also known as the video game industry, generated 120.1 billion dollars in 2019 (Takahashi, 2020). Video games have become one of the preferred leisure options for many and are also increasingly being used beyond entertainment in areas such as education, training, health and advertising. However, most video games are not accessible or fully accessible to people with disabilities, who account for 15% of the world population (WHO, 2018). Users with disabilities face three main challenges when playing video games, as indicated by Yuan et al. (2010: 83–84): a) the player cannot receive stimuli; b) the player cannot establish how to take specific actions that allow the game to move forward and c) the player cannot interact with the game devices and provide input.

The International Game Developers’ Association Game Accessibility Special Interest Group (IGDA Game SIG) defines game accessibility as “the ability to play a game even when functioning under limiting conditions. Limiting conditions can be functional limitations, or disabilities – such as blindness, deafness, or mobility limitations” (Bierre et al., 2004: 5). This is a broad definition that also includes people who cannot play games because of the surrounding circumstances; for example, those who due to environmental noise cannot hear the audio of a game, as well as younger, older or novice players who may experience difficulties when playing. Thus, due to the interactive nature of the video game medium and the active role users have to adopt to play, game accessibility combines usability with adaptability, similarly to accessibility to the Internet and other electronic media, such as software programmes (Mangiron, 2012). Usability and adaptability should be taken into account from the development stages of a game, rather than as an afterthought, in order to improve access to games for players with varying (dis)abilities. Game software and hardware should also be designed so that they are compatible with assistive technologies, such as screen reading software or one-switch controllers.

Game accessibility promotes a design for all that allows for a high degree of customisation, so that different players can choose the features that best suit their specific needs and can enjoy the game without a reduced game experience. The ultimate goal of game accessibility is to avoid disabiliog situations that “occur due to mismatches between a person’s abilities and the
barriers in what they’re interacting with” (IGDA Game SIG, 2020, online). In addition, there are various legal, ethical and financial incentives for making a game accessible. For example, in the United States, the 21st Century Communications and Video Accessibility Act 2010 (CVAA) requires that any communications functionality and any user interface (UI) need to be accessible to people with a wide range of impairments. There may be legal obligations to make all games accessible in the future (IGDA Game SIG, 2020, online).

Game accessibility for players with sight loss is especially challenging due to the visual and interactive nature of games and the general absence of audio description (AD), although some game genres could easily integrate it (Mangiron & Zhang, 2016). Despite the accessibility barriers blind and visually impaired users face, some of them like playing video games and do so using different strategies, such as playing with somebody else’s help or playing simplified versions of existing games, which reduces their game experience and enjoyment. They can play games specifically designed for blind players, such as audio games, which do not have visual elements. However, they may like to play games with their sighted friends and feel part of society. Improving game accessibility can contribute to fostering the sense of social inclusion of blind and visually impaired users. It can also lead to a better quality of life, as they can enjoy more entertainment options and talk about them with others. In addition, a number of games also have educational and therapeutic value, which can be beneficial for disabled users.

2. Historical perspective: accessible gaming for the blind

Making games accessible for blind players requires all visual elements to be represented by means of auditory or haptic feedback. Audio games are games built on audible and tactile feedback with no visual elements, which are thus blind accessible. There are two kinds of audio games: speech audio games and non-speech audio games. Speech audio games are games that “use spoken descriptions of visual situations”, while non-speech audio games “use only non-verbal audio cues” (Targett & Fernström, 2003: 216). The history of audio games can be traced back to the 1970s. Touch Me, a handheld game released by Atari in 1974, was considered the first audio game. It was a memory test which combined both visual and audible signals but could be played by using only the sounds (Hugill and Amelides, 2016: 357). The Milton Bradley Company used a similar idea in the design of Simon (1978), which used a handheld mobile device with four coloured buttons which can be pressed in sequence to match an audio cue (Hugill and Amelides, 2016: 357). The development of audio games was enabled by the advancement of evolving technology. Spatial sound enables players to navigate through the vicinity of games by providing perceptions of the distance to and from a game object in the direction the player is currently facing (Khaliq and Dela Torre, 2019). Spatial navigation is facilitated by binaural hearing and sonification. Binaural hearing allows both ears to receive auditory stimuli and the brainstem nuclei compare the sound coming from each ear to make judgments (Khaliq and Dela Torre, 2019). Sonification uses non-speech audio to convey information or perceptualise data (Khaliq and Dela Torre, 2019). In addition to audio techniques, using tactile solutions is another approach to improve game accessibility for the blind and visually impaired players, as this enables them to perceive through touch. Tactile systems are usually implemented through an output device; the most universally used tactile devices are Braille-related products (Khaliq and Dela Torre, 2019). However, there are advanced haptic devices that provide feedback on shapes, texture, vibrations and motion. Yuan and Folmer (2008) designed a haptic glove which transforms visual stimuli into haptic stimuli for the game Blind Hero, a remake of the popular rhythm game Guitar Hero (2005–to date) they adapted for blind players.
There are a few forums and websites dedicated to promoting and developing audio games. Initiated by two video game researchers, Richard van Tol and Sander Huiberts in the Netherlands, AudioGames.net is a site devoted to audio games and blind-accessible games, which serves as a community portal for all types of resources concerning audio games, including news, articles, an active community forum and a database of over 500 titles on all platforms. Game Accessibility project is another initiative to address accessibility issues in the gaming industry, which informs disabled players about the availability of accessible games and provides resources for developers, publishers and researchers. Moreover, Memor-i studio is a platform that provides free accessible games and allows non-technical users to create inclusive games by adding new sounds and images on the existing Memor-i games (Giannakopoulos et al., 2018).

### 3. Critical issues: improving game accessibility

Several sets of guidelines have been created to provide game developers with recommendations and support in improving game accessibility. A special mention should be made of the work of the International Game Developers’ Association Game Accessibility Special Interest Group, which was founded in 2003 with the mission of making video games playable for everyone, taking “special considerations for gamers with disabilities of any sort” (IGDA GASIG, online). Its members have developed a series of guidelines to improve game accessibility for users with different disabilities, with three levels of accessibility: basic, intermediate and advanced (Game Accessibility Guidelines, online). The basic guidelines are easy to implement at the design stage and can be beneficial to many users. These recommendations aim to avoid accessibility issues for colour blind users and users with low vision, such as ensuring that no information is conveyed by colour alone, using an easily readable font size, using clear text formatting and providing high contrast between text and background.

The intermediate guidelines require some planning and resources to implement but can be beneficial to many players. They include recommendations to provide sound alternatives to text and images, such as the use of surround sound and ensuring screen reader support for mobile devices. They also recommend providing an option to adjust contrast, allowing interfaces to be resized and avoiding placing essential temporary information outside the player’s eye-line, among others.

The advanced guidelines, which require complex adaptations, are addressed to a niche audience and are only applicable to specific game mechanics, but they are very beneficial for specific users. The guidelines that address users with vision impairments include, for example, providing a pingable sonar-style audio map; providing pre-recorded audio for all text, including menus and installers; providing a voiced GPS; ensuring screen reader support; using distinctive sounds and music for all objects and events and providing an audio description track. According to the guidelines, “Audio description presents obvious challenges with dynamic real-time content. However, cut-scenes may be a good place to start, particularly where gameplay is already accessible to blind gamers through sound design or text-to-speech” (Game Accessibility Guidelines, n. d.).

In addition, Microsoft has developed a set of best practices “in partnership with industry experts and members of the gaming and disability community”, which are “intended for designers to generate ideas, for developers as guardrails when developing their game and as a checklist for validating the accessibility of their title” (Microsoft, 2019, online). They include a list of 23 items regarding the following design issues: text display, contrast, additional channels for visual and audio cues, subtitles and captions, audio customisation, screen narration,
input, game difficulty options, object clarity, haptic feedback, audio description, user interface (UI) navigation, UI focus handling, UI context, error messages and destructive actions, time limits, visual distractions, photosensitivity, speech-to-text/text-to-speech chat, communication experiences, accessible feature documentation, accessible customer support and advanced best practices.

For each guideline, Microsoft provides an overview of the accessibility barriers, implementation guidelines to overcome them, a list of the type of users to which the issue is applicable and a list of resources or tools, which provide additional information on the topic. Many of them are applicable to blind users, such as additional channels for audio cues, screen narration, haptic feedback, audio description and text-to-speech chat. From the guidelines, it becomes clear that the interactive nature of video games and the array of components that they consist of call for a distinction between the various technological solutions provided, such as screen narration and audio description. For example, according to Microsoft, screen narration is aimed at conveying any textual information on screen, using screen reading or narration technology. This is applicable to all core UI text, such as the menu, options, character stats, as well as to any interactable UI elements, which should have text alternatives to describe their function, so that users know how to interact with them. This is similar to the use of audio subtitling in other AVT products, whereby written text and inserts are rendered with audio. Interestingly, the guideline for screen narration states that “Non-text content that is purely decorative, used only for visual formatting or is not presented visually should not be spoken” (Microsoft, 2019, online). This is clearly prioritising playability and leaving aside the aesthetic experience of playing a game, which can also be important for the gameplay experience. In addition, the last part of the guideline does not seem necessary, as “non-text content . . . that is not presented visually” is probably presented via audio, which is likely to be accessible for most people with sight loss.

As regards AD, according to Microsoft (2019, online), its objective is “to ensure that users who are unable to view full-motion videos (FMVs) or in-game scripted cinematic events can clearly understand what is taking place”. Microsoft proposes three implementation guidelines regarding AD:

a) all content previously broadcast with AD on television that appears in a game or on the game’s website should be audio described;

b) AD should be available for full motion videos (FMVs) or in-game scripted cinematic events. It should play during natural gaps during playback or, if there is not enough time to “convey the sense of the video, extended audio descriptions should be provided which temporarily pause the video or scripted event to allow enough time for each segment of audio description to play out” (Microsoft, 2019, online);

d) provide full transcripts of FMVs or in-game scripted cinematic events “via an accessible website or other accessible format [sic] which include important visual content, such as facial expressions of characters, narratively important actions, non-speech sounds and dialogue” (Microsoft, 2019, online).

The first guideline only refers to movies with AD on television and not the cinema or DVDs. It could be an oversight, or something related to copyright issues. Also, the idea that the FMVs or cinematic events can be temporarily paused to provide a full AD that “conveys the sense” of the video departs from what is traditionally done in AD for movies and other products, where the AD is reduced according to the available time and the most important information is prioritised. In games, users are constantly interacting with the game and blind
users may object to pausing the game in order to obtain a full description of a scene, as this may affect their immersion. Finally, the idea of providing full transcripts via an accessible website, which could read the information to blind users, or another accessible format, which is not specified, but could be an app for the phone, for example, is also novel and worth exploring. However, as games usually contain several FMVs and cinematic scenes, if users access this information before playing the game, they may have forgotten it by the time they play. Perhaps the solution would be to include all the information in an app to be used on a secondary device that provides the AD as the player goes along. However, this would mean that users would need to interact with two devices and it could be too demanding cognitively. Reception studies would be necessary to establish the best way to include AD in cinematic assets in games.

Regarding the application of AD in games, Mangiron and Zhang (2016) suggest the following areas in which AD can be included to increase game accessibility:

1) in cinematic components, such as trailers, demos and cutscenes:
   Trailers and demos introduce the background stories, main characters and the rules, which are intended as marketing tools to impress players and encourage them to purchase the game. Cutscenes, which usually use FMVs, refer to “any non-interactive storytelling or scene-setting element of a game” (Handcok, 2002, online), which may set the atmosphere, reward the player, introduce new game elements and characters that are crucial to the gameplay. Audio description can be applied to make these components accessible as in films;

2) in audio menus:
   Audio menus are menus that use sound as the primary feedback mechanic (Huiberts, 2008). Game menus can contain both text and images and audio menus can read out the textualised information in them. However, they cannot provide all the information for menus that contain images or icons. Audio description can be used in these cases to provide supplementary information to assist players with decision-making;

3) in heads-up display:
   The heads-up display (HUD) refers to the visual overlay positioned on the screen to indicate the game status, such as the score, the time left, the degree of danger, the distance to destination, etc. The HUD is intended to help players make decisions in the game world. Like game menus, the HUD can contain textualised information and images. Audio description can be applied to provide information contained in the visual elements in the HUD.

In addition, audio descriptions may be added as audio cues in some types of games, such as visual novels. Another possibility would be to provide audio introductions in games, offering a description of the main characters and scenarios. It could be accessed from the settings menu or the game website.

However, adding audio descriptions to existing commercial games can be challenging, as these games have been developed without accessibility considerations. It may require substantial efforts to reprogramme certain options or redesign graphics, which may affect the gameplay in one way or another. Also, the money and time needed may exceed the amount available when developing a game from scratch. For these reasons, ideally, the inclusion of AD in a game should be planned carefully from the beginning of the game design and produced in the process of programming and graphic design rather than added after a game is fully developed. As cinematic assets are designed, they could be sent to the audio describer participating in the
project so that they could prepare the script for a particular cinematic scene and send it back to
the development team, who would then implement it in the game. Good accessibility options
are usually created by informed and concerted efforts in game design with all players in mind
from the very beginning and preferably gathering feedback from users during the preproduc-
tion stage.

In addition, there are a number of other issues to consider when applying audio description
in games. Firstly, games can unfold in a non-linear way, depending on the types of interac-
tions between the game and the player. In some games, players are offered multiple options,
which may lead to different parts of the game world and to alternative developments of the
game story. The AD should cover all the possible playing trajectories in a game to facilitate
full gameplay.

Secondly, audio descriptions need to be mixed in with other types of sound in games,
namely speech, sound and music, without interfering with their functions. In the production
process of game audio, these three types of sounds are usually stored as voice recordings,
sound effect files and music files (Brandon, 2005: 24). AD can be included in the voice record-
ings; however, it needs to be differentiated from other in-game dialogues. It would also be
advisable to use a distinguishable voice for AD, for example, as is the case with the narrator
in documentaries. AD could be offered in different languages, so that players can avail them-
selves of it in the language of the version they are playing.

Overall, AD has not been applied in mainstream games. Although other solutions have been
applied to convert text to audio or provide haptic feedback, the audio description of cinematic
content in games is still not available. One of the main reasons is the lack of knowledge about
AD among game developers, or more precisely, about how best to design and implement AD in
a way which can cater for both sighted and non-sighted individuals. The technical challenges
and linguistic considerations AD may pose in games require substantial further research. Slow-
paced story-based games, such as adventure games, role playing games and visual novels, could
be a starting point to apply audio description (Mangiron & Zhang, 2016). As previously men-
tioned, reception studies would be necessary to determine the best way to include AD in games,
although following standards applied to other media, such as adjusting the descriptions to the
available time and prioritising the critical information, seems the most appropriate way to start.

4. Current research

Since the early 2000s game accessibility has been gaining attention from the industry and aca-
demia, although further research in this area would be beneficial for users and game designers
alike, as its results could be applied to the development of more inclusive games. Most avail-
able research is from the area of Engineering and Computer Science and a significant number
of authors have focused on the design of audio games. Designing audio games is a complex
challenge that differs from video game design, as they feature no visual output. Sonification
is considered one of the major challenges in audio game design (Urbanek et al., 2018). Many
objects, such as an apple or a table, do not emit sounds in reality and unsuccessful sound
design can drastically disrupt the gameplaying experience or game immersion and lead to
undesired mental representations in the players’ imagination (Urbanek et al., 2018). Lansley et
al. (2018) developed SoniFight, a utility software designed to provide additional sonification
cues, which they believe particularly useful for fighting games. Chatzidimitris et al. (2016)
conducted a case study on SoundPacman, a prototype location-based game in which players
experience the game space with the use of 3D sounds. Their study suggests that sound aug-
m entation may significantly enhance the immersion levels of players.
Several researchers have conceived specific audio game design rules geared towards working with sound. Some of the very first design guidelines specific to audio game design were proposed by Friberg and Gärdenfors (2004), drawing on literature on auditory displays, auditory interfaces and film sound theories, and their work was later expanded by Rovithis et al. (2014). A more comprehensive list of design suggestions is provided by Teixeira Borges and de Borba Campos (2017). They identified 466 recommendations in the existing literature on the development of accessible games, which they redesigned into a guideline with 31 suggestions for audio game design, organised into four categories: 1) playing experience, level and progression; 2) data entry for software and hardware; 3) installation, configuration and help and 4) sound elements.

Araújo et al. (2017) proposed ten recommendations for the design of mobile audio games targeted at blind players and established a model for evaluating the degree of accessibility of mobile games for these users. In addition, after conducting an extensive review of 157 audio game prototypes by interaction design students, Urbanek et al. (2018) presented eleven “anti-rules” which, when followed, are likely to spoil the user experience of an audio game, so as to avoid common mistakes in audio game design. Urbanek et al. (2018) also call for the game design community not to restrict themselves by conforming to video game design guidelines but to develop audio games as audio games from scratch.

The latest research includes the application of Intelligent Personal Assistant (IPA) enabled devices in the development of audio games (Cicció & Quesada, 2018), as well as experiments on game-playing agents learning to play video games solely from audio cues (Gaina & Stephenson, 2019).

Other authors have focused on how to develop or adapt existing games for blind players. For example, as already mentioned, Yuan and Folmer (2008) created Blind Hero, a remake of the popular rhythm game Guitar Hero (2005 – to date), which uses a glove that provides tactile feedback and allows players to provide input to the game. Willems et al. (2011) created an adventure game for blind children that is played with the balance board of the Wii console, with the objective of helping blind children develop balance skills. The game was designed by means of co-creation, with visually impaired, blind and sighted children contributing to the design of the content and the form of the game and physical therapists and teachers advising on the motor aspects (Willems et al., 2011). Co-creation is essential to improve game accessibility, as users’ feedback is crucial to establish which accessibility options work best.

Bernardo et al. (2016) proposed studying accessible games as assistive technology from the perspectives of multimodality, so as to establish a new approach for theoretical work to interpret public demands in digital games development.

Columbia University developed a Racing Auditory Display. This is an audio interface for car racing games that allows blind people to compete with the same speed and control as sighted players. The player can listen to the audio-based interface with a pair of headphones and the interface can be integrated by developers into most racing games, thus making this genre accessible for blind players. The information on speed and trajectory, as well as information on the curves of the track, is transmitted through sound, so that blind players can have a similar experience to sighted players (Evarts, 2018).

Khaliq and Dela Torre (2019) present an overview of the different game design techniques that can be used to make a game more accessible for the colour blind and low vision users, distinguishing between visual and audio techniques. Visual techniques include, for example, the use of iconography instead of colours, the use of colour-blind filters, colour and font customisation. Audio techniques are, for example, the auditory substitution of any written text, auditory navigation, the use of binaural audio to enhance user’s spatial awareness and providing
tactile and haptic feedback to users. The authors provide examples of how these accessible solutions have been implemented in different games.

Scholarly attention has also been paid to the design of serious accessible games for educational purposes (see Petridou et al., 2011; Park & Kim, 2013; Jaramillo-Alcázar & Luján-Mora, 2017; Salvador-Ullauri et al., 2017; Juloori et al., 2018; Baalsrud Hauge et al., 2018). The e-UCM e-learning research group at the Universidad Complutense de Madrid designed the e-Adventure platform, an open-source game authoring tool for developing educational games accessible for blind players (Torrente et al., 2013). It allows accessibility features to be added to existing 2D point and click adventure games by means of three different user interfaces, which can be used independently or in combination: a) a keyboard navigation system, so that users can play as if they were browsing the web; b) a sonar that allows play by using the mouse and c) a natural language command interface so that users can interact with the game using speech recognition and synthesised speech (Torrente et al., 2013).

While interest in game accessibility for the blind is gradually increasing from an engineering and game design perspective, until now research on the potential application of AD in video games has been almost non-existent. There is one contribution by Mangiron and Zhang (2016) that provides an overview of the current state of game accessibility for blind and visually impaired players, describing the main barriers they face and how they overcome them. They also explore the potential application of AD to video games and identify the game genres where it could be more easily introduced. For example, AD could be implemented in story-driven action, adventure games and RPGs, which contain cinematic scenes, as well as visual novels (Mangiron & Zhang, 2016: 88–90).

One of the latest advances in the study of the potential application of AD to video games can be found in the Researching Audio Description (RAD) project, funded by the Spanish Government. RAD aims to research the current scenario of game accessibility in Spain with a focus on how players with sight loss could be given access to games through AD, as will be explained further in the next section.

5. Research methods

Several methods have been applied to study how to improve accessibility for blind and low vision players, such as descriptive research, evaluative research and experimental reception studies.

Yuan et al. (2011) performed a descriptive study of the research and practice in game accessibility. They conducted a survey with blind users to identify the game genres that could be made accessible to them and identified the following genres: first-person shooters, music and rhythm games, racing games, puzzles, platform games, arcade games, real-time strategy games and role-playing games (RPG). They then analysed a number of player interactions with games of different genres and proposed a game interaction model, which was subsequently used to identify how a disability affects a player’s ability to play games.

As has been illustrated, Torrente et al. (2013) proposed three different game interfaces that could be used separately or in combination in order to improve game accessibility for the blind: a) a keyboard navigation system that allows users to play as if they were browsing the web; b) a sonar that allows playing through using the mouse and c) a natural language command interface for interacting with the game using speech recognition and synthesised speech. They performed a small-scale experiment with four blind users to determine the game interface they preferred. They found out that the preference depended on the users’ gaming experience and that the three different interfaces could be used to make a game of this genre
Video games and audio description

accessible to blind and visually impaired players. The best solution would depend on the context and the target audience.

Mangiron and Zhang (2016) gave a descriptive overview of the state of the art of game accessibility for the blind, based on the current literature and proposing game genres and components where AD could be implemented.

Araújo et al. (2017) did a literature review of existing accessibility guidelines and proposed ten recommendations for developing games for blind users, which they subsequently used to prepare an evaluation model of the degree of accessibility of a game. They then conducted an experimental study in which two visually impaired users assessed the degree of accessibility of ten audio games. The results indicated that only two games in the sample were accessible and met the recommended guidelines.

The Researching Audio Description project of the Universitat Autònoma de Barcelona is the first national project to focus specifically on the potential application of AD to video games. It combines descriptive research about current guidelines and the degree of accessibility of commercial games with participant-oriented research by means of questionnaires and interviews both with users and developers. A questionnaire will be distributed online to blind and low vision users with the help of users’ associations to identify users’ needs and preferences about game accessibility. Once the data has been collected and analysed, a questionnaire will be prepared for developers, in order to obtain their views and ideas about the potential inclusion of AD in mainstream games. Follow-up interviews both with users and developers will also take place when appropriate to obtain more fine-grained qualitative feedback.

6. Future directions

Accessibility has been made a priority by many major video game companies. Electronic Arts (EA) states on their website that “Accessibility is the correction of any mismatch between a person and their environment, including those resulting from medical differences. At EA, we feel it’s important to consider accessibility when making our games, so everyone can play”. Karen Stevens, head of accessibility at EA Sports, also stated at the Games Developers Conference in San Francisco in 2018 that “It’s not as good an experience [as competitive sighted gamers get], but it is an experience. And having an experience is the most important thing” (Hassan, 2018). Many of EA’s popular games started to include accessibility features to better engage blind and visually impaired players. For example, in Madden NFL (EA Sports, 2019), an American football video game series, players are given options to add various sounds to different plays, helping blind and visually impaired players better understand what is going on in the gameplay. In another game, Need for Speed (EA, 2019), a racing video game franchise, audio cues are included to indicate when cars are turning, or when obstacles are close, which also helps players who rely on sound. In addition, Marvel’s Spider-Man (Sony, 2018) for PlayStation 4 allows players to customise settings according to their visual ability, with options to add large subtitles or helpful audio. A special mention must be made of the game The Last of Us II (2020), by Naughty Dog, which includes 60 accessibility features. The game has been developed following the advice of several consultants of varying disability backgrounds who are also experts in game accessibility (Bayliss, 2020). Players can choose from three accessibility presets that provide vision, hearing and motor accessibility. It is the first game where all onscreen text can be converted to audio via text-to-speech technology. However, cinematic assets do not include audio description. In fact, to date, no triple-A games, which are blockbusters with high budgets and high sales, have included AD, which, as discussed in the previous sections, still remains a pending issue and requires further development in video games.
Blind and visually impaired players may have been assisted by their families or friends to play commercial games without accessibility features, as they have been helped with watching films or TV before professional audio description services became widely available. Nowadays, live audio descriptions are provided for cultural events, such as theatre plays, musical festivals and many other types of shows and performances. However, it has not been reported that audio descriptions are provided live for players to engage with games, although AD has been applied to game streaming videos. Video game live streaming is an activity where streamers record themselves playing games to a live audience online, on sites such as Twitch, YouTube and other platforms. On YouTube, there is a channel called Audio Described Gaming, which has more than 500 uploaded videos. In the About section, it states that

Video games are awesome . . . but not everybody can enjoy them. Some people have physical limitations to enjoy[ing] the majority of games. I not only play story-driven games, but I provide tons of physical description so that people on the visually impaired spectrum can enjoy games as much as me or anybody else!!’

This demonstrates initiatives from the gamer community and provides visually impaired players with an opportunity to engage with game streaming. Moreover, there are also YouTube channels hosted by blind gamers, such as Blind Gamer, which shows how a blind gamer plays video games and evaluates the accessibility of popular games. AD for live gaming and game streaming could be an interesting area for audio description research and a business opportunity for audio describers to expand their services.

In addition to making games accessible, it is also essential to make game programming accessible for people with visual impairments, so that they can actively involve themselves in game development. Bonk, for example, is an accessible computation tool facilitating audio games creation online with a browser-based editor. Ten blind and visually impaired high school students participated in a formative evaluation of Bonk, which demonstrated that this approach can provide them with a variety of technical abilities to design and share games (Kane et al., 2018). It is hoped that more tools will be developed to better include everyone in the gaming industry.

Last but not least, there is not yet an established framework to support dedicated educators to provide systematic training in game accessibility in higher education institutions. Westin and Dupire (2016) conducted an online survey and suggested that the design of a curriculum framework should introduce game accessibility by explaining the current problems, users’ needs and the lack of awareness in the game industry. This should be followed by teaching how games can be developed and designed in accessible ways. However, further research is required to design a curriculum, provide training, reflect on it and improve that curriculum based on the feedback from both tutors and trainees.

Notes

1 Haptic feedback is a force in the form of resistance or vibrations, relating to or based on the sense of touch, simulated by a device, usually through the game controller held by the player (O’Hagan & Mangiron, 2013: 8).
2 For more information, see https://audiogames.net/
3 For more information, see www.game-accessibility.com/
4 For more information, see http://memoristudio.scify.org/home
5 For more information, please see www.ea.com/able
6 For more information, please see www.youtube.com/channel/UC0liuqhnIvfLbMeL-g3THoA
7 For more information, please see www.youtube.com/channel/UC0liuqhnIvfLbMeL-g3THoA/about
8 For more information, please see www.youtube.com/channel/UCtWREyqji2spI0KiWHp09Fvg

7. Further reading

*Game accessibility guidelines.* Retrieved from http://gameaccessibilityguidelines.com/basic/

This website includes game accessibility guidelines aimed at game developers, divided into three levels, depending on how easy they are to implement and how many people they benefit. They subdivide them by disabilities and provide examples of games where they have been implemented if available.


A chapter that presents a historical overview of gaming options for the blind, identifies the main barriers blind players face when playing games and how they overcome them. It also analyses what game assets, such as cut-scenes, and game genres, such as music games, visual novels and 2D point and click adventure games, would be appropriate for including AD.


A set of recommendations from Microsoft addressed to developers with the objective of improving game accessibility for different types of users. It also contains links to other resources.


A paper that surveys the state-of-the-art in research and practice in the accessibility of video games and points out relevant areas for future research. It provides a game interaction model that shows how different disabilities affect the user’s ability to play games. It also lists several high and low-level accessibility strategies for inclusive design.

8. References


9. Gameography


10. Acknowledgements

Carme Mangiron’s contribution to this work is supported by the Researching Audio Description project (PGC2018–096566-B-I00, MICIU/AEI, FEDER, UE), awarded by the Spanish Government and the project 2017SGR113, funded by the Generalitat de Catalunya.

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