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Play Without Barriers

Principles for Inclusive Video Game Design

game jam 4 all | University of Staffordshire | Tencent

Contents

Introduction

Video games sit at the heart of modern culture.

With 86% of the UK population having played them in the past year, they are one of the most widely shared forms of entertainment.

They tell stories, build communities, teach skills and create moments of joy. Yet for millions of players, barriers still limit full access because many games are designed without fully considering their needs.

When accessibility is treated as an afterthought, entire communities are excluded from play, connection and belonging. Too often, barriers are addressed late in the development cycle or viewed as optional enhancements rather than fundamental design decisions.

As a result, many players still face limitations on what they can play, how long they can engage and whether they can fully participate. Accessibility in video game design expands the audience and deepens engagement. It means ensuring players can understand systems, navigate worlds, follow stories and make meaningful decisions, even when they perceive information or interact with games differently.

This document sets out core design principles, questions and considerations to help developers create video games that welcome more players without narrowing creative ambition. Disability is diverse, overlapping and deeply personal, which means there is no single formula for accessible design. Rather than prescribing fixed solutions, these principles encourage thoughtful, flexible approaches that reflect the needs of each video game and its players.

Designing for accessibility benefits everyone. Features that support players with the most significant access needs often improve clarity, usability and immersion for the entire audience. When video games are designed without barriers, more people get to play and the experience becomes richer for all.

These principles have been developed with the support of Tencent's specialist games user research team. Working closely with studios, the team brings real player experiences into the development process to identify barriers, validate design choices and improve overall quality. By grounding design decisions in lived experience, they help create video games that are more accessible, immersive and rewarding for everyone.

Chapter 1

Vision Accessibility

According to the Royal National Institute of Blind People (RNIB), 76% of video game players with low vision say their sight significantly affects their ability to play. Yet only 15% of game developers report understanding these needs.

This gap leads to exclusion, but it also presents a clear opportunity to design more inclusive video games.

For blind and partially sighted players, accessibility does not mean making video games easier or less ambitious. It means providing alternative ways to find information, understand systems and make decisions, without relying solely on visual cues.

Magnification alone is rarely sufficient. If critical information is communicated only through colour, visual effects, text or spatial cues, players may still be excluded from core gameplay.

A quote from a blind player sharing their experience from a Tencent user research session.

> *Everything is labelled as accessible, but often, blind players are excluded from it. Sometimes they say a game is accessible to blind players, but it just includes magnification! I'm seeing a lot of people that buy games, only to find out they are not actually accessible to them"*

Chapter 1 continued →

Designing for Independent Interaction

A key aspect of blind accessibility is enabling players to navigate and interact with the video game world as independently as possible, without requiring sighted assistance.

There are many approaches developers can take, and the right solution depends on the type of video game being created and what navigation means within that context. From an accessibility perspective, the needs of a fast-paced action game will differ significantly from those of a strategy or management title.

Screen readers and text-to-speech are also critical accessibility features for blind players and players with low vision. These tools allow in-game text to be read aloud, ensuring essential information is accessible to those who cannot read it visually.

Clarity, Contrast and Focus

Colour can both support and hinder accessibility.

Players with colour blindness may perceive colours differently from those without colour vision impairments. Thoughtful use of colour, alongside customisation options and alternative ways of conveying information, helps ensure that visual design enhances accessibility rather than creating barriers.

Players with low vision may find it difficult to identify interactive elements within the game world or distinguish them from non-interactive elements. Similarly, players with cognitive conditions or sensory processing differences may benefit from clearer guidance about which visual elements require their attention.

When visual clarity is limited, players may miss key interactions or struggle to progress independently. It is therefore important that every element essential to progression or understanding is clearly distinguishable and meaningfully communicated within the game.
Vision accessibility requires thinking beyond what is seen, ensuring that gameplay information, feedback and navigation are available through multiple senses.

Chapter 1 continued →

Core Design Principles

Consider designing with totally blind players in mind, as many partially sighted players will also benefit from those features

Essential information should not rely on sight alone

Navigation, systems and feedback should be perceivable through multiple channels

Key Questions for Developers

- → **How can essential information be communicated non-visually?**
- → **Can players navigate and understand the world through audio or haptics?**
- → **Can players easily read the text in the game: is it big enough, bold enough, with a clear font?**
- → **In multiplayer games, how can blind players communicate, collaborate and track progression?**

Designing with blind and partially sighted players in mind often results in clearer systems and stronger feedback for all players.

Chapter 2

Hearing Accessibility

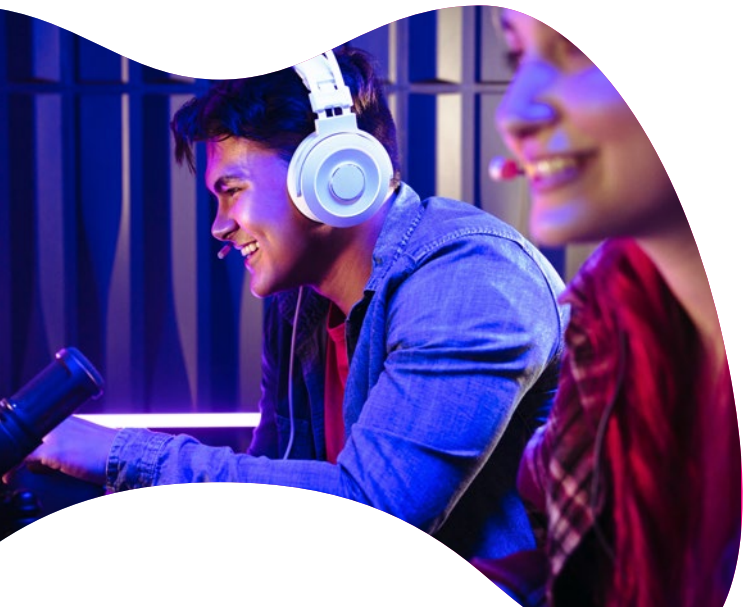
Deaf and hard-of-hearing (DHH) players represent a significant and growing part of the video gaming audience.

Hearing loss exists on a wide spectrum: it may be partial or total, temporary or permanent and may be accompanied by conditions such as tinnitus.

While there are no precise figures for gamers specifically, the World Health Organisation estimates that over **5%** of the global population requires rehabilitation for disabling hearing loss, a figure projected to rise to one in ten people by 2050. This is not a marginal audience.

For DHH players, a core accessibility consideration is ensuring that any information or mechanic relying on sound is also communicated through visual or haptic cues. When sound is the only channel, players who cannot perceive it are excluded because it is delivered through a single sensory pathway.

Because hearing loss varies widely, there is no single solution. The core principle is redundancy: ensuring sound-based information is available through multiple channels, without diminishing intent or immersion.



Chapter 2 continues →

Subtitles and Captions

Most players use subtitles, far beyond those who rely on them for access.

Subtitles, if available, should therefore be turned on by default, clear, legible and comfortable to read. Achieving this requires careful consideration of layout, font, contrast and timing, while balancing readability with the pacing and tone of each scene.

In scenes with multiple characters, DHH players may find it difficult to identify who is speaking. Including the speaker's name within subtitles provides clarity and removes the need to rely on visual cues such as lip movement or camera focus.

Subtitles convey spoken dialogue. Captions communicate non-dialogue audio such as sound effects, music and environmental cues.

Together, these tools allow players to follow the narrative and understand the game's soundscape. Captions are especially important when key gameplay signals are delivered through audio cues.

Translating Audio into Gameplay Signals

Information delivered exclusively through sound remains inaccessible to DHH players.

Essential audio cues related to gameplay and in-game events should therefore be translated into clear visual or haptic indicators.

Each video game should define which audio information is critical to player awareness and progression. Prioritising key gameplay signals and presenting them clearly enables DHH players to engage with the game as intended.

Every game requires a tailored approach. Many genres, however, share conventions and visual language that can guide effective solutions and inform best practice.

Chapter 2 continued →

Core Design Principles

Where sound conveys critical information, it should also be available through visual or haptic cues

Visual and haptic cues should convey urgency, intent and context

Customisation for adjusting individual volume levels for speech, music and sound effects, is strongly recommended

Key Questions for Developers

- → **What gameplay information relies on sound alone?**
- → **Which sounds are critical to safety or progression?**
- → **How can audio cues be visualised without overwhelming the heads-up display (HUD)?**
- → **What audio settings can players customise?**

Accessible audio design benefits everyone, including players in noisy environments, shared spaces or on mobile devices in public settings.

Chapter 3

Motor & Input Accessibility

Motor accessibility focuses on how players physically interact with video games.

Players may be born with a motor disability or develop one later in life due to injury, illness or ageing. Motor disabilities include a wide range of experiences, from temporary injuries to long-term conditions such as chronic pain, neurological conditions, limb difference or reduced range of motion.

Without appropriate support, players may face barriers such as difficulty using modern controllers, muscle fatigue during extended play sessions, pain caused by repeated inputs or involuntary movements that make precise actions difficult. These needs vary widely, meaning there is no single solution.

Control Complexity as a Barrier

A common barrier is the growing complexity of modern control schemes.

Many video games require numerous inputs spread across a wide physical area, often demanding speed, precision and repetition. For some players, this complexity can make otherwise enjoyable games inaccessible.

Interactions may be difficult for players who:

- **Have limited hand function and cannot press or hold multiple inputs simultaneously**
- **Experience joint or muscular fatigue or chronic pain**
- **Have difficulty coordinating fine or precise movements**

These barriers are amplified in UI-heavy contexts, particularly in high-stakes situations such as combat or complex traversal, where players may need to change equipment or settings quickly.

Chapter 3 continues →

Designing Flexible Control Systems

Two broad strategies can help reduce these barriers:

- **Full control rebinding, allowing players to map actions to inputs that suit them**
- **Simplified or optional control schemes that reduce unnecessary input complexity**

Control requirements vary across genres. As with many aspects of accessibility, greater customisation generally improves access. Whether on keyboard and mouse or controller, enabling players to configure controls according to their needs significantly enhances usability.

In UI-heavy contexts, accessibility may also involve rethinking how menus are navigated. Allowing players to pause the game when using menus, navigate with buttons instead of a free-moving cursor and tap instead of holding inputs can reduce strain and improve comfort.

Adaptive controllers can be transformative, though they may present financial barriers. Developers should prioritise robust, built-in accessibility features and ensure compatibility with assistive technologies, without assuming players have access to specialised hardware.

Reducing Strain and Fatigue

These measures aim to simplify and reduce physical strain during interaction.

Minimising unnecessary effort helps players better manage fatigue and discomfort. As in many areas of accessibility, providing options allows players to choose what works best for them.

Adjustable mouse sensitivity is now widely expected. Originally implemented for accessibility, it has become standard across many genres, particularly first-person games. Players adjust sensitivity for comfort, precision or to reduce motion discomfort.

For players using controllers, adjustable analogue stick sensitivity is equally important. Exerting force on analogue sticks can be challenging for a variety of reasons:

- **Limited range of motion or reduced thumb control**
- **Fatigue or pain exacerbated by sustained directional input**

For example, some games require pushing an analogue stick slightly to walk and fully to sprint. Sustained or forceful movements can be uncomfortable or painful for some players.

Providing alternatives, such as toggle options, adjustable thresholds or simplified movement controls can significantly improve comfort and allow longer more sustainable play sessions.

The implementation of these options will vary by game. Testing control schemes with players, including those with motor disabilities, is essential to building inclusive input systems.

Chapter 3 continued →

Core Design Principles

Reduce unnecessary input complexity

Support alternative ways to perform actions

Prioritise flexibility and customisation

Key Questions for Developers

- → **Can all controls be fully rebound/remapped?**
- → **Can repeated or complex inputs be adjusted or simplified?**
- → **Can the game be played comfortably over longer sessions?**

Designing for motor accessibility helps more players engage confidently, without compromising challenge or creative intent.

Chapter 3 continued →

Real Life Examples

SpecialEffect is a UK based charity that supports players with reduced mobility by creating custom-made gaming set-ups tailored to their needs.

Working with specialist occupational therapists, engineers and the players themselves, the team designs custom solutions often using assistive or alternative hardware based on individual abilities, preferred games and playstyles. Their videos clearly demonstrate who benefits from these technologies, how they are used in practice and the meaningful difference they make to players' gaming experiences.

In this video, Joe uses a standard controller with his right hand, alongside additional joysticks and buttons mounted within easy reach on his wheelchair. This setup enables accessible control on his left side, where a standard controller would be difficult to use.

Chapter 4

Cognitive Accessibility

Cognitive accessibility ensures games are playable by people whose brains process information differently.

This includes players with neurodevelopmental differences such as autism, ADHD or OCD; learning impairments; brain injuries; and mental health conditions including anxiety, depression or PTSD.

These differences can influence how players process information, follow instructions, remember objectives, manage inventories or maintain focus during busy gameplay. This does not reflect a lack of interest or ability. Many players with cognitive differences enjoy games for creativity, escapism, social connection and learning.

Cognitive accessibility is not simplifying games or reducing their depth. It is ensuring players can access, understand and act on information, even when systems are complex and information rich. This applies across gameplay cues, tutorials, narrative and environmental storytelling.

Chapter 4 continues →

Managing Cognitive Load

Many neurodivergent players experience sensory input and information density differently.

Overwhelming stimuli, rapid decision-making and high-pressure mechanics can increase stress and reduce enjoyment.

Difficulty options can provide valuable support. Features such as reduced inbound damage, wider timing windows or less aggressive enemy behaviour lower the stakes and create a more forgiving experience. While these adjustments are not a complete solution, they allow players to progress at a pace and level of tension that feels manageable.

Designing for cognitive accessibility means reducing unnecessary cognitive load — the mental effort required to process and act on information — without compromising challenge or creative intent.

Tutorials, Memory and Narrative Clarity

Tutorials are central to cognitive accessibility.

They shape how players learn core mechanics and navigate systems. An accessible tutorial benefits everyone.

Best practice involves introducing mechanics gradually, in context, rather than presenting large volumes of information at once. Players should be able to revisit objectives, system explanations and key narrative details when needed.

Retention can be particularly challenging in narrative-heavy games with complex storylines or dense world-building. Important plot points may occur during high-stakes moments that divide player attention. Providing logs, recaps or clear objective summaries helps players stay oriented without diminishing immersion.

Clear and Intentional Language

Language clarity is crucial. Instructions should be concise, consistent and easy to understand.

Stylised or archaic phrasing may enrich world-building but can create unnecessary barriers when used in system instructions or critical prompts.

This is especially important for essential actions such as saving or exiting the game, where misunderstanding can result in lost progress.

Given the wide variation in cognitive needs, accessible design centres on clarity, flexibility and support, enabling players to engage at a pace that works for them.

Chapter 4 continued →

Core Design Principles

Systems shouldn't be unnecessarily complex; clarity should guide how information is presented to the player	Support memory, recall and understanding	Teach mechanics through relevant context presented gradually rather than all at once	Reduce unnecessary cognitive load

Key Questions for Developers

- → Is language clear, consistent and easy to understand?
- → Can players revisit objectives or tutorials easily?
- → Are tutorials contextual and replayable?
- → Does the game guide attention without overwhelming players?

Designing for cognitive accessibility helps players stay engaged, confident and immersed, particularly in games that offer rich systems, complex mechanics or dense narrative worlds.

Chapter 5

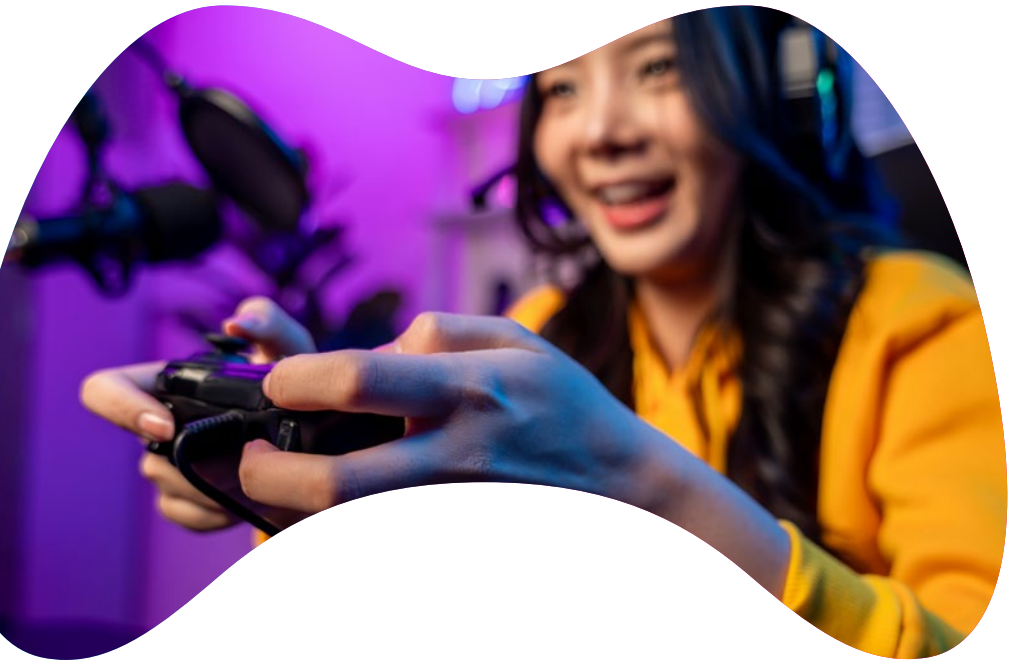
Emotional Accessibility

Emotional accessibility focuses on players' ability to engage with a game and its content in a way that supports their psychological safety and emotional well-being.

Many games explore difficult themes, intense emotions or challenging subject matter, and that creative freedom should remain intact.

Emotional accessibility is not avoiding difficult topics; it gives players agency over how and when they engage with emotionally challenging content, allowing them to make informed choices and engage on their own terms.

Most people will experience mental health challenges at some point in their lives and may be more vulnerable to certain themes than others. For some players, exposure to specific content may trigger strong emotional, psychological or physical responses.



Chapter 5 continues →

Content Warnings and Informed Choice

Content warnings describe potentially distressing material that players may encounter, such as depictions of violence, sexual assault or suicide.

They allow players to understand what lies ahead before engaging with the experience.

Effective content warnings:

- **Appear at the beginning of the game and before potentially distressing sections**
- **Allow players to enable or disable them according to preference**
- **Clearly identify depictions or references to traumatic events, phobias, addictive or harmful behaviours**

Providing this information early allows players to assess whether and how they wish to engage, based on their own tolerance and circumstances.

While content warnings are valuable, they may not be sufficient for all players. For some, certain triggers are overwhelming regardless of preparation.

Providing Flexibility and Control

Phobias and other conditions can make particular topics, visuals, sounds or scenarios deeply distressing.

In such cases, offering the ability to skip a cutscene, mission or level containing that material can make the difference between exclusion and meaningful participation.

When a game includes traumatic themes, phobias or addictive behaviours, it should provide appropriate information about relevant support resources. This may include crisis helplines, support organisations or educational resources. Where possible, these resources should be localised to the player's region.

By implementing thoughtful design measures, developers empower players to engage safely with challenging content. The goal is to provide clarity, transparency and control so players can manage their experience confidently.

Chapter 5 continued →

Core Design Principles

Transparency builds trust	**Choice empowers players**	**Respectful, authentic representation matters**

Key Questions for Developers

- → **Do players have enough information before purchasing or first time playing to understand whether the game will meet their needs?**
- → **Are sensitive moments clearly signposted during gameplay?**
- → **Are difficult topics portrayed respectfully and without sensationalism?**
- → **Can players adjust, pause or bypass triggering content while continuing to play?**

When players feel informed and in control, they are more likely to engage meaningfully, even with challenging material.

Chapter 6

Mobile Accessibility

Mobile games introduce unique accessibility considerations due to smaller screen size, touch-based input and play context.

Players often engage with mobile games in short sessions, on the move and in unpredictable environments such as public transport or shared spaces. These conditions can amplify existing accessibility barriers, particularly for players who already face challenges with vision, hearing, motor input or cognitive processing.

Many accessibility principles from console and PC gaming still apply, but mobile platforms introduce additional constraints and opportunities. Smaller screens affect visual clarity and legibility, while touch input can require precise gestures that may be difficult for some players to perform consistently. At the same time, mobile devices offer built-in accessibility features and sensors that can support more flexible interaction when used thoughtfully.

Chapter 6 continued →

Legibility on Small Screens

As with PC and console games, text in mobile games must be legible for all players.

Because screens are significantly smaller, additional consideration is required to support players with low vision and those who may struggle to process dense or complex text.

Best practice mirrors other platforms: use clear, readable fonts; ensure strong contrast between text and background; and provide options to increase font size. On mobile, these considerations are especially important given screen constraints and the more casual, interrupted nature of play.

Touch Targets and Input Simplicity

For many players, particularly those who experience difficulty with fine motor movements, small touch targets can present a significant barrier.

Button size and placement are therefore critical. Interfaces crowded with small, tightly spaced inputs are far more difficult to use than layouts with larger, well-spaced touch targets.

There are established minimum size recommendations for comfortable touch interaction. As with most accessibility measures, however, providing customisation options where possible offers the greatest flexibility.

Designing for Real-World Play

Mobile players often engage in environments where attention is divided, for example, while commuting.

Distractions and split focus can make it difficult to manage complex systems or demanding control schemes.

Keeping input systems streamlined and reducing unnecessary complexity helps players stay engaged even when attention is limited. Designers should also account for the shorter nature of mobile sessions, ensuring that players can pause, resume or exit comfortably at any time.

Mobile accessibility means ensuring players can perceive information, process it and provide input, regardless of where, when or how they are playing.

Chapter 6 continued →

Core Design Principles

Prioritise legibility on small screens

Minimise reliance on precision-dependent gestures

Respect shorter play sessions and varied play contexts

Key Questions for Developers

- → **Is text readable across all screen sizes and orientations?**
- → **Are touch targets large, forgiving and well-spaced?**
- → **How does the game behave in noisy or distracting environments?**
- → **Can players pause, resume or stop comfortably at any time?**

Mobile accessibility is giving players the flexibility to engage comfortably, wherever and however they play.

Chapter 7

Multiplayer & Social Accessibility

Multiplayer games introduce additional layers of accessibility because they are inherently social.

Players with accessibility needs want to participate in multiplayer experiences just as much as anyone else. For many disabled players, video games are a vital way to connect with others, build community and reduce social isolation.

According to AbleGamers, **35-45% of people** with disabilities were profoundly socially isolated even before COVID, and video games can play an important role in building connection and community. For many players, multiplayer games provide an important space for communication, collaboration and shared experience. However, multiplayer systems can also introduce barriers that do not exist in single-player games.

Accessible multiplayer design requires developers to consider the systems that shape social play. While many accessibility considerations overlap with single-player experiences, multiplayer introduces additional challenges related to communication, teamwork and competition. These systems should be designed to support diverse play styles and abilities, without forcing players to disclose disabilities or accept disadvantage.

Chapter 7 continues →

Inclusive Communication Systems

Text chat and voice chat are common communication tools, but they are not the only options.

In team-based or cooperative games, players need fast and efficient ways to share information.

Alternative communication systems may include:

- **Ping systems**
- **World markers**
- **Map markers for players and teammates**

These tools benefit all players, not only those with disabilities. In high-pressure situations, typing a message or speaking a full sentence may take longer than the moment allows. Quick visual communication tools improve gameplay flow while also serving as key accessibility features for players who rely on non-verbal interaction.

Providing multiple communication channels ensures that players can contribute effectively regardless of hearing ability, speech differences, anxiety or communication preference.

Fairness, Agency and Competitive Integrity

Each multiplayer game presents its own accessibility challenges and opportunities.

Developers should identify these specific dynamics and design systems that promote fairness without reducing competitive integrity.

Players should be able to control how, when and with whom they communicate. Accessibility features should enhance participation without introducing stigma or competitive disadvantage.

Accessible multiplayer design enables participation without forced disclosure, helping to build fairer and more welcoming communities for all players.

Chapter 7 continued →

Core Design Principles

Support inclusive and flexible communication	**Enable cooperation across different play styles and abilities**	**Protect players from exclusion**

Key Questions for Developers

- → **Are there accessible alternatives to voice chat?**
- → **Can players control how, when and with whom they communicate?**
- → **Do team mechanics allow players to contribute in different ways?**
- → **Are accessibility features usable without stigma or competitive disadvantage?**

Accessible multiplayer design enables participation without forcing disclosure, creating fairer, more welcoming communities for all players.

Chapter 8

Designing Without Assumptions

Accessibility is not a feature; it's a mindset.

There is no one-size-fits-all solution to accessible game design, but there are better questions to ask and the earlier they are asked, the more impact they have.

Designing without assumptions means recognising that players perceive, process and interact with games in different ways and building systems that can flex to support that diversity.

Testing with disabled players, offering meaningful customisation and designing adaptable mechanics all lead to stronger, more inclusive experiences. Accessibility should never mean simplifying a game or reducing challenge. All players want to feel engaged, capable and rewarded. Accessibility is enabling that challenge, not removing it.

A useful question to return to throughout development is:

→ **If a player cannot access or complete something in the intended way, what alternative does the game provide?**

Designing for accessibility is an ongoing process, not a final checklist. It works best when integrated into core mechanics and systems, rather than treated as an optional layer added at the end. By continually questioning assumptions and listening to player feedback, developers can create games that adapt over time and remain welcoming to a wider audience.

When games are designed without assumptions, more people get to play and the experience becomes richer for everyone.

At Tencent, we support this approach by providing accessibility-focused user research, testing and evaluation throughout development. By grounding design decisions in real player experiences, we help studios identify barriers early and move towards more inclusive, engaging and resilient video game design.

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