

# Research Portfolio

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# Games for Positive Impact

## Research Portfolio

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For over 50 years, the emergence of the gaming industry has grown to become a significant staple within entertainment. In 2022 the ERA (Digital Entertainment and Retail Association) estimated that video games accounted for 42.1% of home entertainment profits, surpassing the film and music sectors combined [1]. With gaming becoming the standard (although the benefits are in debate), video games are widely regarded as an asset. For example, providing engaging educational experiences, encouraging awareness of inclusivity and accessibility, and promoting skills such as social, perception, navigation, and many more. To assess the benefits video game experiences can provide, topics such as the structure, story, and mechanics of a game must be reviewed.

## The Legend of Zelda: Breath of the Wild

The Legend of Zelda: Breath of the Wild is an open-world, action-adventure game developed and released by Nintendo in 2017 [2]. The game follows Link, a legendary hero in the land of Hyrule. Following a 100-year slumber, Link awakens without the memories of his past in the once great Hyrule, now overrun with monsters and corruption led by the evil force of Ganon. The last remaining champion must venture into this new world and defeat Ganon, bringing peace back to Hyrule and its people [3]. Upon awakening, players are provided with a Sheikah Slate, a device that grants users many abilities and mechanics important for gameplay such as navigation, inventory, and puzzle solving.

Regarding the positive impact Breath of the Wild has, there are many educational and skill-building benefits within its gameplay. Being an open-world game, Breath of the Wild promotes experimentation and curiosity, encouraging players to explore and discover new areas, resources, characters, and more. As the story has minimal dialogue and direction, player inquisitiveness is a key trait for this game. Expanding on experimentation, the game grants users the freedom to achieve their goals in multiple ways. This mechanic forces players to continuously experiment and adapt to the task at hand, simultaneously providing the practice to safely take risks. Throughout the game, players will collect various ingredients; from this, a cooking mini-game is introduced. By interacting with a cooking pot, players can choose from their resources to create a multitude of dishes. Good food combinations can boost stats and enhance gameplay, motivating users to experiment and discover the best dishes.

Breath of the Wild requires the use of logic and strategy, promoted by the vast number of puzzles scattered around Hyrule. They are found within shrines and dungeons and allow players to achieve them in various, non-linear ways. These puzzles come in many forms, such as mazes, pattern-based puzzles, riddles, physics puzzles, and more [4]. By completing these puzzles, players critical thinking and problem-solving skills are challenged and are overall rewarded for overcoming the trial-and-error process. Careful consideration and planning are crucial to successfully progress through the story; this naturally creates a routine where the player will assess and strategise before embarking on quests. Breath of the Wild features weapons that are breakable with use, teaching players the value of sustainability and assessing when to sacrifice appropriate resources. Due to limited inventory space, users must also consider the weapons and resources they will most need on their outings, promoting organisation and cognitive thinking skills. From a study assessing problem-solving skills within game-based environments, it is quoted, "Well-designed video games can support higher-level learning via offering players practice across multiple and varied problem-solving scenarios [5]," and "Video games have been shown to improve creativity, recall of facts, and problem-solving skills when compared to computer-assisted instruction [5]."

Although *Breath of the Wild* is not a highly social game, it does contain many unique characters to be encountered, each with their own needs and desires. The player can accept jobs and requests through interacting with such characters. This mechanic teaches the value of helping others and is particularly beneficial to younger audiences when practicing social awareness and empathy. Hyrule is a vast and diverse environment for the player to discover, full of nature and life. A connection to nature and environmental conservation is promoted through exploration and care for the natural world.

*Breath of the Wild* displays cultural representation of Japanese iconology within its game design, specifically drawn from the Jōmon period [6]. Described to be the earliest era of Japanese history, Jōmon translates to 'patterned' or 'cord marked,' referencing the style of pottery found within this time [7]. An interview with *Breath of the Wild*'s art director, Satoru Takizawa, confirms their inspiration with the following quote:

The Jōmon period in Japanese history was the inspiration for the Sheikah Slate, shrines, and all of the other ancient objects and structures in the game. We ended up taking that aesthetic and using it as a base to expand upon for the game's ancient civilisations. The reason for this was because the Jōmon period is relatively unknown to much of the world. It has a nuance of mystery and wonder that we found really appealing. We were looking for something that would feel unique, and settled on Japan's Jōmon period as a result [6].

On the accessibility of the game, *Breath of the Wild* possesses a diverse range of language options and a fairly basic control system, allowing players from varying backgrounds, age groups, and skill levels to access gameplay. Alongside this, the game boasts a clear visual style, providing easy navigation and potentially benefitting visually impaired players. Although *Breath of the Wild* does not hold your hand through gameplay, guided interactive tutorials are implemented, alongside providing consistent contextual guidance throughout the game. For players who may have difficulty retaining information, summaries of the story progression can be found in the 'Adventure Log,' providing context to those who may have forgotten.

## Celeste

*Celeste* is a 2D precision platform game developed in 2018 by indie studio Maddy Makes Games [8]. The player takes on the role of Madeline, a young woman suffering with anxiety and depression. Madeline decides she must climb Celeste Mountain, aiming to challenge herself and overcome her struggles. Throughout her climb, she will encounter various personalities, notably a character named Badeline, a personification of Madeline's struggles and self-hate. Madeline must embark on a journey of strength and self-acceptance to ultimately succeed in her climb of Celeste Mountain [9].

Although *Celeste* may not be an obvious educational choice, there is evidence that using the game as a teaching tool has been a valuable experience for students [10]. The main gameplay premise of *Celeste* is the concept of failure; each level is designed to be against the player, even featuring a death counter to highlight each defeat. Although frustrating, this difficulty provides a valuable lesson of practice, patience, and overcoming adversity. The consistent trial and error process utilises failure to promote feelings of confidence and resilience within the player. Alongside this, the game creates an experience that shows the value of what it

means to have a growth mindset. Throughout the game, the character Badeline is consistently a source of disruption to Madeline's climb. Eventually Madeline realises that to achieve her goals she must accept that Badeline is a part of her and that she must embrace this to become whole. This concept is a great visual representation demonstrating that these emotions are not a monster to be defeated but something that deserves kindness and acceptance to grow beyond it. The behaviours displayed within Celeste could be a beneficial portrayal of social cognitive learning, the practice of learning behaviours through observation, emulation, and modelling, proposed by Albert Bandura [11]. From this, Celeste's gaming experience could demonstrate behaviours of self-love and acceptance within younger audiences.

Onto the themes of mental health, Celeste educates on the effects of anxiety and depression through its storytelling, the demonstration of overcoming hardship, and the personification and resistance of these emotions. Not only does the game promote an understanding of mental health, but it also provides examples of coping techniques to manage the subsequent symptoms. For example, Celeste's gameplay loop encapsulates the saying "one step at a time." Madeline is required to overcome one level at a time to progress on her journey of self-acceptance. This lesson is an important reminder to those who may suffer from overwhelm to break down their tasks and look at the smaller picture. The game also features a display of mindfulness through a gameplay mechanic in which Madeline experiences a panic attack; the player must calm this by clicking and holding the mouse to control Madeline's breathing. This scene speaks to those who may suffer from panic attacks and teaches a realistic use of breathing techniques to subdue the situation.

Celeste's narrative is rooted in social awareness through having the players participate in Madeline's experience, thoughts, and feelings as if they were their own. The players are Madeline, witnessing her failures and triumphs firsthand. From this, the game promotes a deep sense of empathy for the story and its characters through its interactive gameplay. The concept of self-acceptance and understanding is also explored through empathising with the character Badeline. This promotes a sense of introspection and encourages players with the choice of compassion.

Celeste approaches the difficulties of mental health from a relatable, humanising perspective, bringing comfort, acceptance, and understanding to the disabled community. Providing a game that explores these themes in a real but positive manner creates a space where individuals do not have to feel uncomfortable or ashamed to discuss their own experiences and struggles. Alongside this, Celeste features a cast of diverse characters of differing personalities and backgrounds, inviting inclusivity and empathy within the game's community.

As Celeste is themed around disability, the game design was naturally created to be inclusive to its audience. Within the game's settings resides an 'Assist Mode' option. Assist mode allows the player to modify the game's rules through 'Assist Options,' offering freedom to adjust a range of motor settings and customisation of the game. Players can create an accessible experience personalised to their individual preferences and ability. This mode also includes the alteration of settings such as game speed, infinite stamina, and invincibility.

With the growth of the gaming industry increasing each year and the engagement it generates, it is inevitable that video games will become a prevalent teaching tool within education. Alongside this, it is a beneficial asset for all ages to learn and develop a wide range of skills and understanding. With this, The Legend of Zelda: Breath of the Wild and Celeste are both examples of games that provide interactive, educational experiences offering social/environmental awareness, positive cultural portrayals, and accessible, inclusive gameplay experiences for their audiences.

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# Research Portfolio

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## GRADEMARK REPORT

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FINAL GRADE

71 / 100

GENERAL COMMENTS

### 1. Engagement With Literature Skills (69%)

References included in the report show that research has been applied to the assessment submission, which is good to see. A bibliography of research has also been applied that adheres to IEEE format and contains a range of sources – good work.

### 2. Knowledge & Understanding Skills (72%)

A good understanding of the source material is provided in the report, demonstrating engagement with the games being reviewed.

Knowledge of Growth Mindsets is good to see as this is a real-world method of promoting resilience and the application in game form is appropriate for this assignment – these are the qualities that games often contain but are rarely discussed.

The report is written well and points are articulated in a professional manner while still being easy to understand. Good work.

### 3. Cognitive & Intellectual Skills (71%)

Analysis of problem solving skills, creativity, cultural representation and overcoming adversity are

highlighted across the games being studied.

Accessibility options are analysed and included as part of the work, which is good to see- themes and concepts are only part of positive elements of good game design – accessibility is another very important area for inclusivity and appealing to a wider audience. Good work.

#### **4. Practical Application Skills**

*(not assessed in this assignment)*

#### **5. Transferrable Skills for Life and Professional Practice**

*(not assessed in this assignment)*

**Overall Mark: 70.7%**

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PAGE 1

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PAGE 2

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PAGE 3

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PAGE 4

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PAGE 5

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