Breathing with Buttons:
Balancing Education with Engaging Mechanics

Joel Bergen

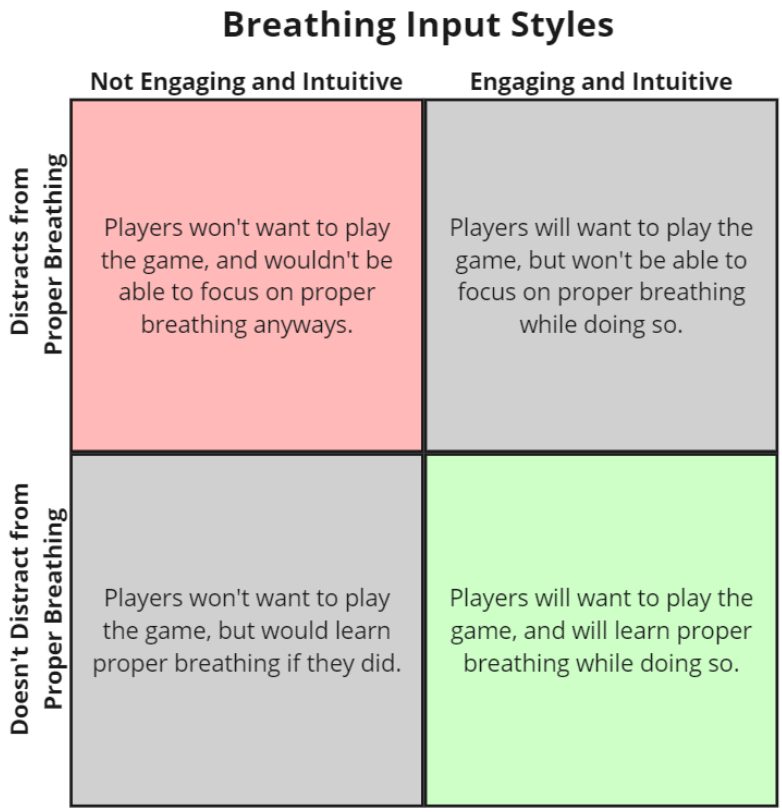
Introduction

In the fourth year of Sheridan's Game Design program, students are tasked with creating a capstone game in a group over two terms. Myself and five other students have partnered with a professor from the Child and Youth Care program and have taken on the challenge of creating a game that teaches breathing techniques to teens struggling with Anxiety. Our game will use real-life breathing as a frequent mechanic, and because of this, we were posed with the following design problem: *What button inputs best allow the player to focus on correctly performing breathing techniques while remaining engaging and intuitive?*

Design Problem

As mentioned above, our team was tasked with finding what button inputs allow the player to focus on correctly performing breathing techniques, while still being engaging and intuitive. This problem was crucial for our team to solve, as three proper breaths can take a player upwards of 30-40 seconds. If we ignore this design challenge, we risk losing players in that time. This meant we had to balance engaging inputs and educational content within that sequence to create a successful capstone project.

The diagram below demonstrates this challenge:



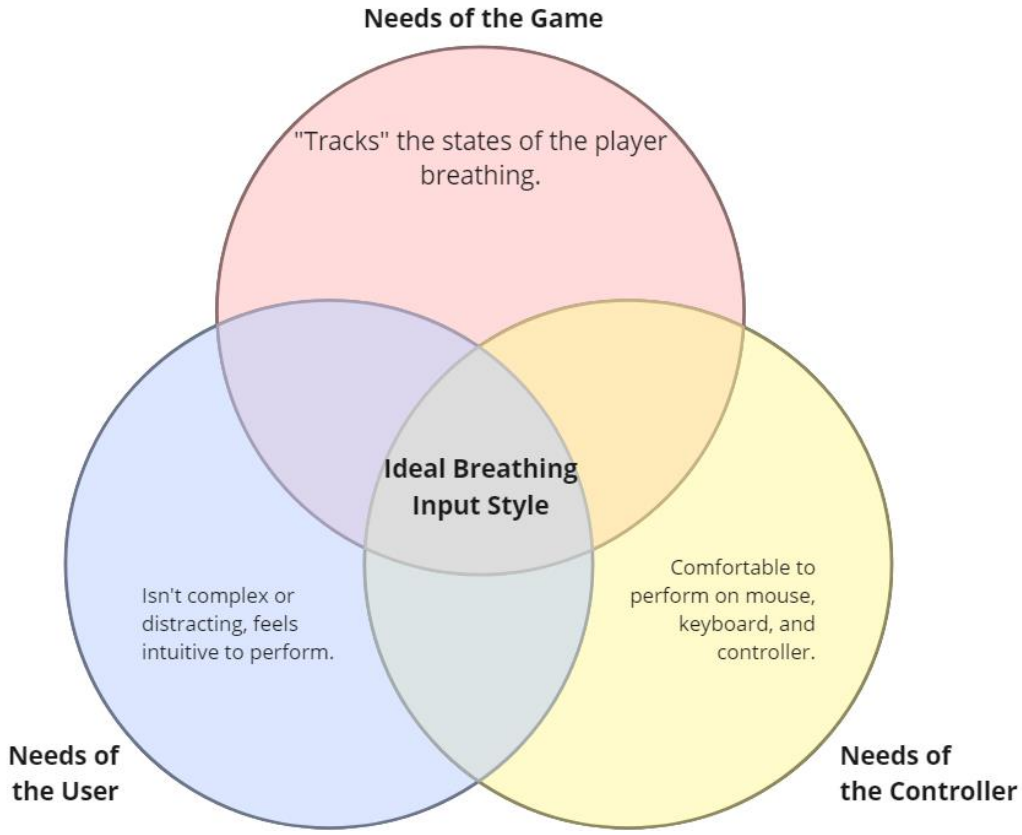
If we focus on making the inputs in the game's breathing sequence as engaging as possible, we risk the player forgetting to properly breathe, lessening the educational value of the game. Conversely, if we ignore engagement and focus on only making the breathing sequence educationally rich, we risk players losing interest in the game, leaving us with no players to teach breathing techniques. Only when we find a balance between these two concepts would we be able to create a game that teaches breathing techniques correctly while remaining fun to play.

Method

Approaching the Problem

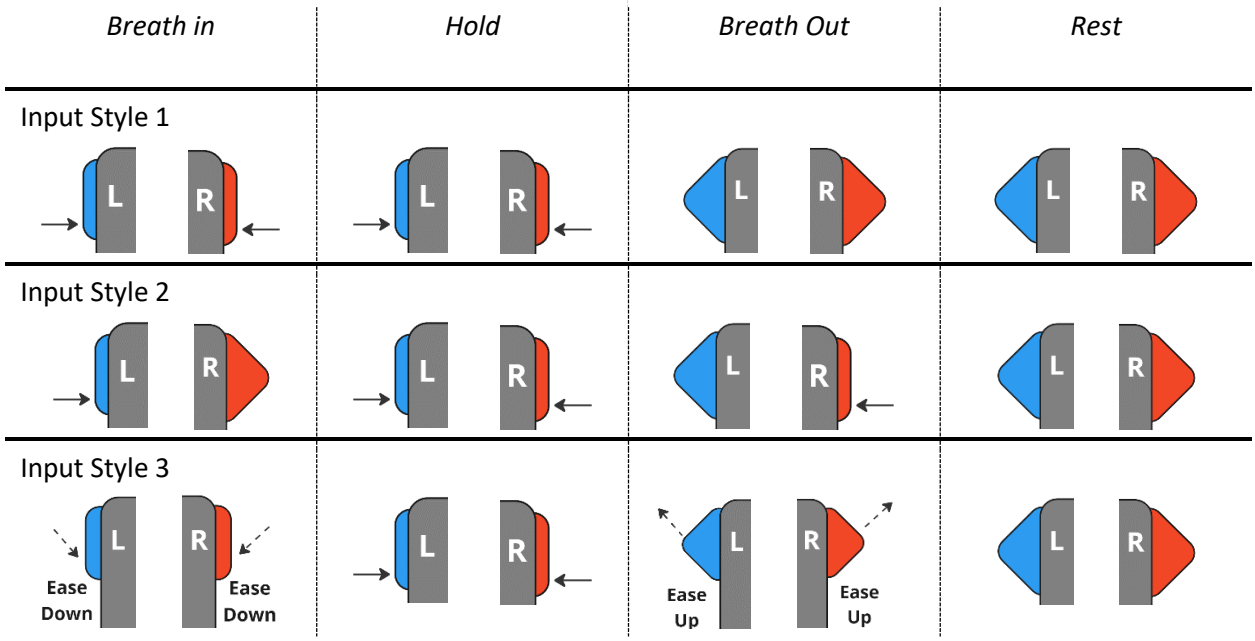
When approaching possible inputs to represent breathing, there were a few different needs that had to be met:

Needs of the Game	*Needs of the User*	*Needs of the Controller*
The solution must "track" the states of the player's breathing, allowing for puzzle-solving in-game.	The solution must not be complex or distracting and must feel intuitive to perform.	The solution must feel comfortable to perform with a mouse and keyboard as well as a controller.



Brainstorming Solutions

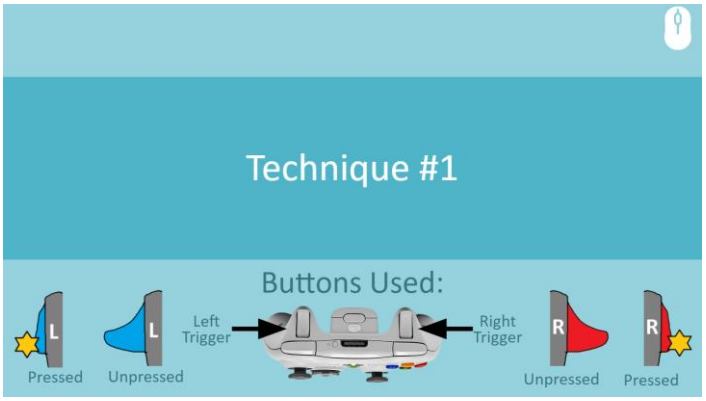
For our solution to be viable, it had to satisfy all three of these criteria. With this in mind, our team brainstormed possible button inputs that could be used. After sharing our results, we narrowed our focus to three input styles. Each used controller triggers as its primary input, however, most could easily be adapted to a keyboard if needed. Below are the following three input styles:

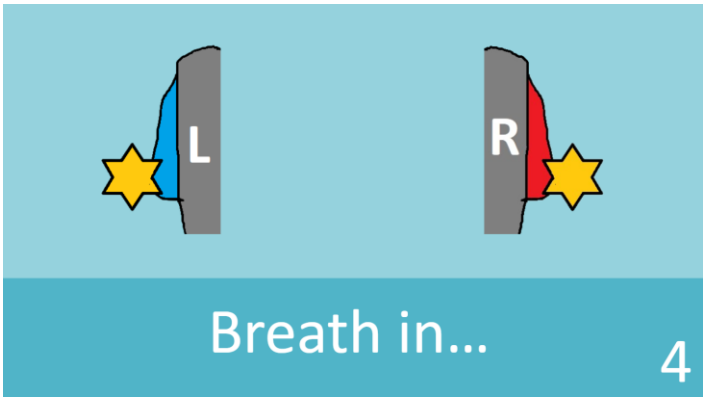


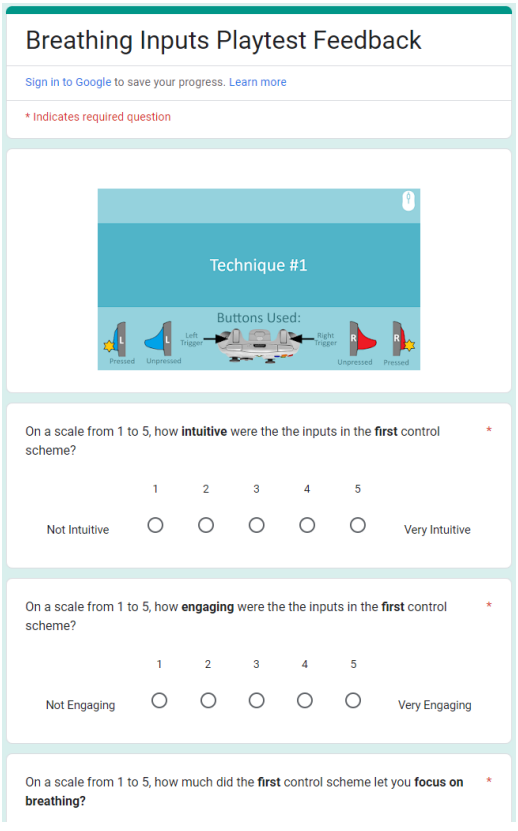
Our first input style had the player holding both triggers down to inhale and letting go of both triggers to exhale. Our second input style had the player holding the left trigger when breathing in, holding both triggers to hold, holding the right trigger to breathe out, and letting go of both to rest. Our final input style had the player slowly easing both triggers down as they breath in, and slowly easing them up as they exhale. At the time we felt all input methods had their own merits. Because of this, we decided to run some early playtests to see what methods worked best.

Playtesting Solutions

Before playtesting, our team first created a playtesting report. This way we could standardize how the test was conducted and centralize our findings into one location. We also created a slideshow that guided players on what inputs to press in place of an actual build. The slideshow was automatically timed so players could follow along with the shown inputs without the need for external instructions. Lastly, we created a form to collect participant feedback after the playtest. Below are images taken from the playtesting slideshow and feedback form:







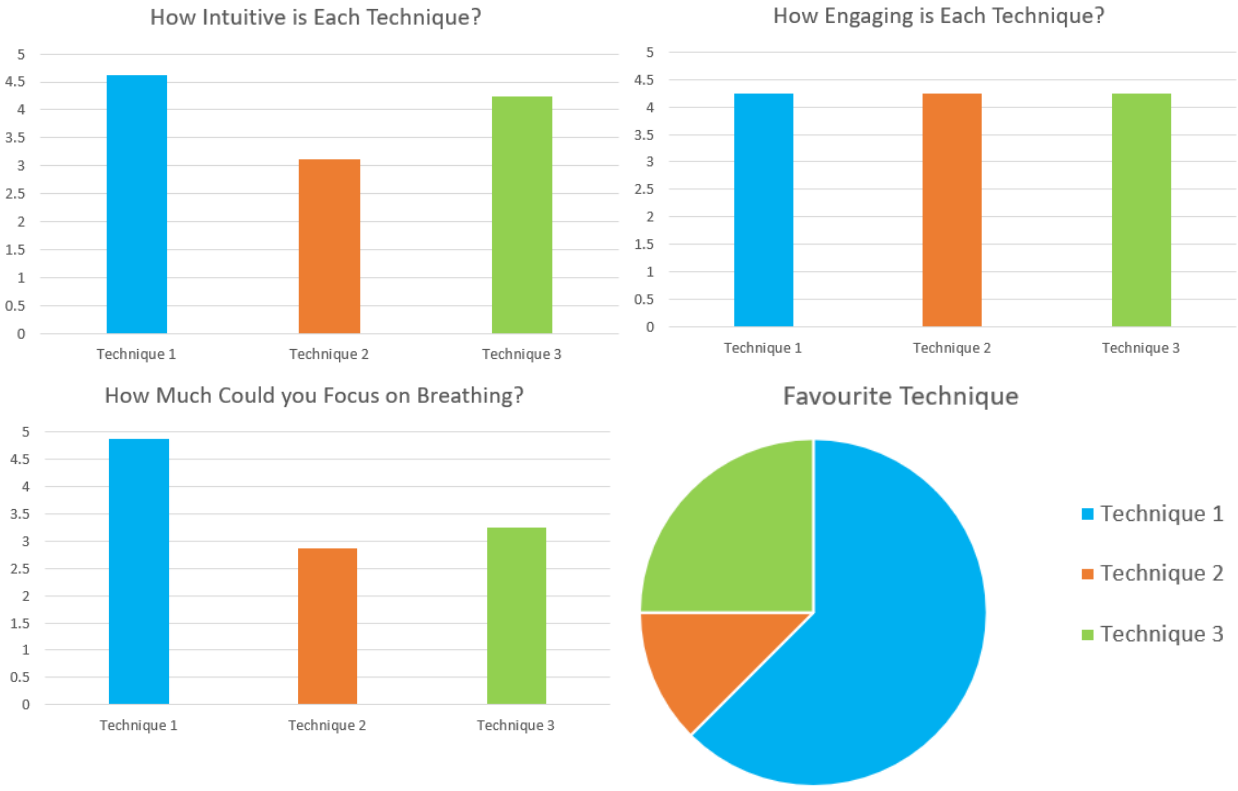
Our playtesting methodology roughly followed this structure:

1. Introduce ourselves and explain our intent to find the input style that best supports breathing.
2. Give the player an unplugged Xbox 360 controller to perform the breathing inputs with.
3. Run the playtesting slideshow, which prompts the player with input instructions for each of the three breathing input techniques. The player is asked to press the corresponding inputs as they show up, as well as breathe along.
4. Ask the player for any feedback they may have, and present them with the post-test feedback form.
5. Thank the playtester for their time.

Analyzing Playtest Results

Once we had finished running the test with 8 participants, some patterns in verbal feedback began to appear. Nonetheless, we wanted to analyze the numerical data we received from form responses to see if it backed our suspicions.

Below is the response data we received organized into charts:



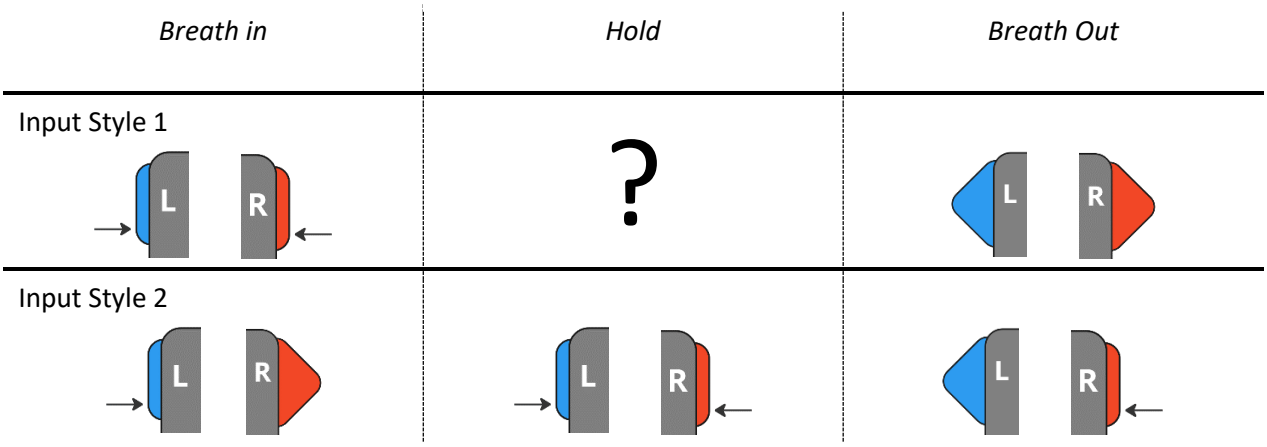
Our first instinct was to go with the technique 1, as this seemed to be the favorite overall. It scored highest in three of the four categories and tied for first in how engaging it was. This is what we chose to go with as a team initially, and most of our early designs were built with this input style in mind.

Despite the data seeming to be on our side, the decision wasn't perfect. Playtesters were only given a chance to perform each breathing technique once, meaning that they may have not had a chance to learn the more complex techniques. This idea was backed up by some of the written feedback we received, as three different participants stated they felt technique 2 may become more intuitive and less distracting if they had more time to practice it. We were also pushed to reconsider our initial choice because of another factor related to gameplay.

Evaluating New Gameplay Requirements

Originally, only our *Life Breathing* mechanic thematically involved breathing. To push our message further, we decided to also tie some of our puzzle-solving mechanics to breathing, even if the player wouldn't be breathing while performing them. This new puzzle solving mechanic required the player to set objects to three different states using breathing: *Inhale, Hold,* and *Exhale.*

This raised a problem, as our previous input style could only track two states: *Inhale,* and *Exhale.* We didn't want to introduce a second control scheme for breathing in another context, as we felt this would create too much confusion. Instead, we decided to pivot to our second input style, as this would allow us to track all three of the states that we need.



We are yet to playtest this new input style, however, I feel confident that it will create engaging gameplay, and so long as we give players time to practice it, I don't believe it will detract from the player's focus on breathing.

Conclusion

During the ideation and playtesting of solutions to this design problem, our group has found that some input techniques are immediately more intuitive for players, allowing for instant understanding of breathing techniques. This ignores the fact that some techniques may become easier with practice however, and with the bonus of these techniques opening new doors for gameplay possibilities, they should not be immediately shelved.

Future Steps

Going forward our team will implement input technique 2 into our game, and will monitor how intuitive the control scheme is in future playtests. We will also experiment with variations on technique 2, to see if there are ways to make it more intuitive should player confusion arise. This way, we will be able to achieve a breathing input style that is both intuitive and engaging, while not detracting from the actual breathing the player will be performing.