

Evan Goldring  
GMD 320-01

## Project 2

### Strategy and Logic

**Intent Statement:** “By using a color combination mechanic, I intend to create a block matching puzzle game that challenges players to think about how they are going to reach their goal , by planning out the order of their moves carefully as they play while raising the tension with a visible time limit; and enhancing the experience through audio visual feedback.”

**Research and Thesis:** I intend to create a puzzle game that uses block matching. The mechanic that makes this a puzzle is the color combination mechanic. The player must combine blocks based off of their color and position in relation to one another. This slowly rearranges the puzzle until the player either must reset as it is possible to get stuck or they complete the puzzle. I would also like to add some audio-visual feedback to enhance the experience and make the player feel rewarded for progress. The key points to the experience should be a sense of challenge, but having that be offset by a clear understanding of each puzzle and a rewarding experience when progressing.

I have continued to use the GDC Vault as a source for research for this project. I also used another game reference with *Bejeweled 3*. My focus was on balancing puzzle challenge and frustration as well as some audio-visual feedback research. The goal was to ensure the puzzle was challenging while remaining fun.

The presentation dedicated to puzzle design given by Brett Taylor called Puzzle Game Magic Secrets focused on memory. He spoke about the limited capacity that humans have for problem solving and how it can get cluttered by unnecessary details, as well as how the amount

of memory that each puzzle mechanic takes up becomes less as familiarity grows. This is why puzzle mechanics are usually introduced one at a time, including the twists on the same mechanics, with the player being given some time to master them. It is also useful to avoid cluttering the player's mind with unnecessary noise from external sources.

This concept of useless noise in a puzzle game was something that the speaker on The Art of The Witness, Luis Antonio talked about. He discussed how the team struggled to combine the puzzles and the art direction to ensure a cohesive visual language for their players. This is a much simpler prospect for this project as it is a 2D puzzle game with no environmental context, but it is useful to see the mindset of others when creating the visuals for a puzzle. The puzzle should clearly convey itself to the player, even without a rule sheet, if the visuals have been done right.

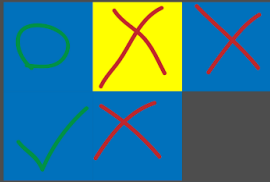



One presentation that talked about this as well as balancing difficulty was a talk given by Jeppe Carlsen on *Limbo*: Balancing Fun and Frustration in Puzzle Design. Or more specifically, the design process for it's puzzles. The developer from Playdead talked about how they managed to combine the audio-visual feedback, art design, and puzzle design to create a challenging game that felt fair and conveyed itself to the player. The art design was made to be immersive, while not getting in the way of the player's understanding of the puzzles. The audio-visual feedback was designed carefully to help the player learn how to interact with the environment. This included everything from the sound effects of bear traps to the intentionally brutal death animations.

Another game I looked at for audio-visual feedback was *Bejeweled 3*. This game is similar to the one I am creating for this project as it is a simpler puzzle game with no environmental context. The game used its feedback to ensure that the player constantly felt

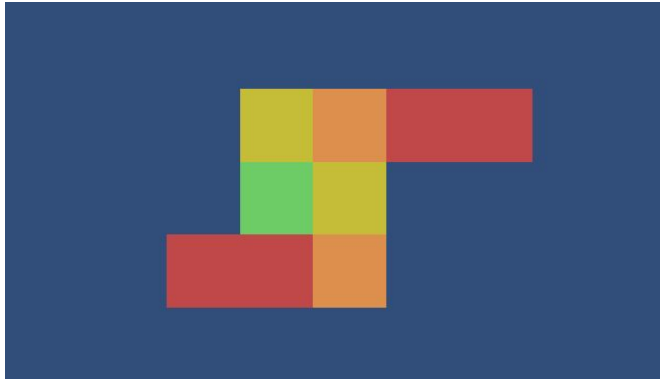
rewarded in order to keep them engaged. This was done through the use of heavy visual effects and sound bites for every positive action the player performed, no matter how small.

These ideas fall in line very well with my intentions for this project. A simple puzzle game with simple, but challenging mechanics that make the player plan their moves carefully. The visual design of the game will be simple in order to make the project easier to create, but also to ensure that the player has an easier time understanding the puzzle. The audio and visual effects will ensure that the player feels rewarded for making any progress, no matter how small it may be, not just for completing the puzzle.

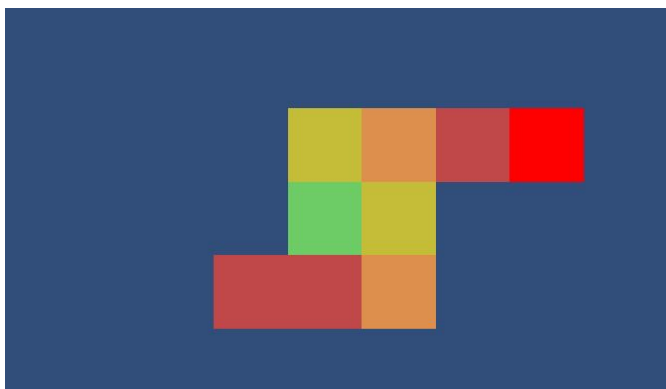
### VDD:

GMD 320-01 Project 2 VDD		Evan Goldring evan.goldring@mymail.champlain.edu	
	<p>Only blocks next that are directly vertical or horizontal and of the same color may be selected.</p>		<p>Once two blocks have been selected they will combine to form a new block in place of the second one and both of the originals are destroyed.</p>
	<p>Colors transition from red, to orange, to blue, to green after each combination.</p>		<p>Combining the two green blocks at the end results in victory.</p>

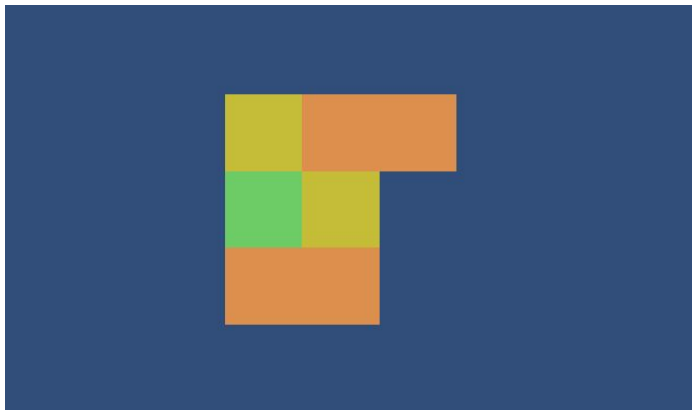
### Storyboard:



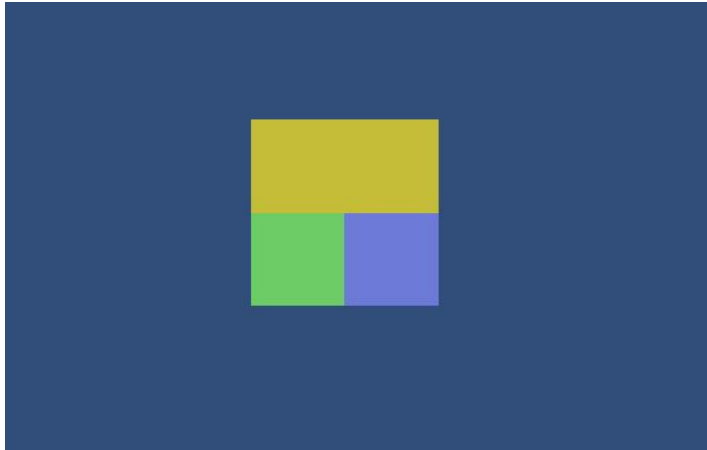
The player begins a new puzzle.



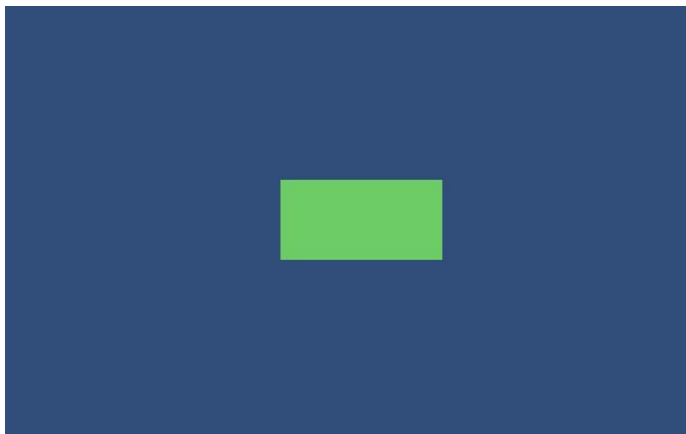
The player selects a block.



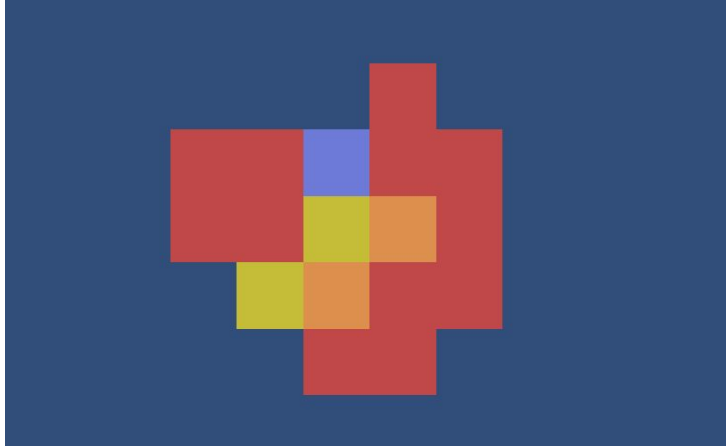
The player has matched two pairs by selecting two blocks next to each other of the same color for each pair. This creates new blocks of different colors at the location of the second in each pair selected.



The player has progressed through the puzzle having followed their plan to combine blocks in the right direction and order to complete the puzzle.



The player has successfully reached the end of the puzzle and only needs to combine the final two blocks.



The player starts a new puzzle.

### **Systems and Mechanics:**

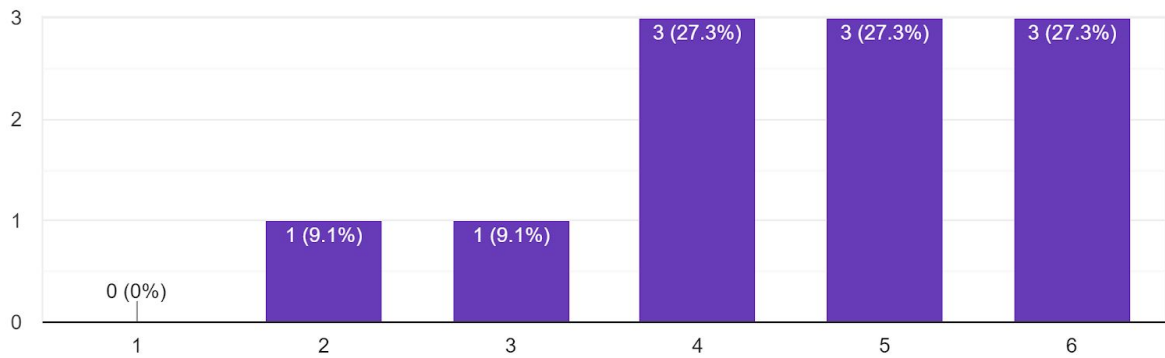
- Selection/Deselection
  - Selectable blocks based off of color and position in relation to each other
  - Deselectable to give the player a small amount of self-correction
- Matching
  - Blocks are matched when two are successfully selected

**QA:** This project was tested by friends in one go. In total there were 11 testers for this project.

Unfortunately due to some development issues this had to be done part way through the creation process so the project was not at the stage that it is being delivered at. With that said it was still important to test the basic puzzle mechanic and get people's feedback on it.

Did you enjoy the color matching mechanic?

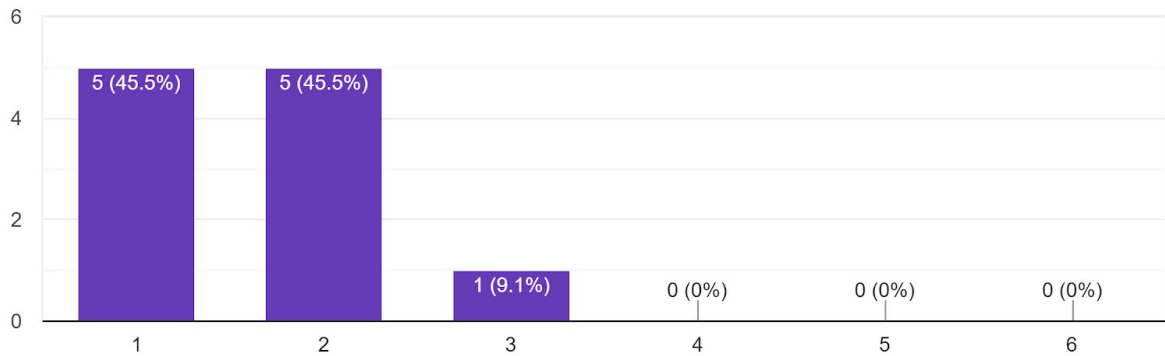
11 responses



Most people seemed to have a positive reaction to the color matching mechanic as the base mechanic for the game.

How difficult did you find puzzle 1?

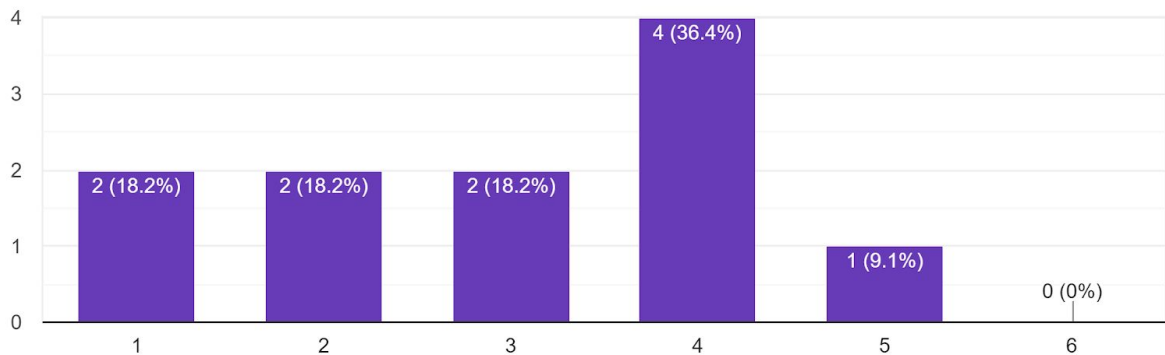
11 responses



Puzzle 1 seemed to be relatively easy for everyone as it only took one to two tries for them to complete it. This was the desired outcome.

How difficult did you find puzzle 2?

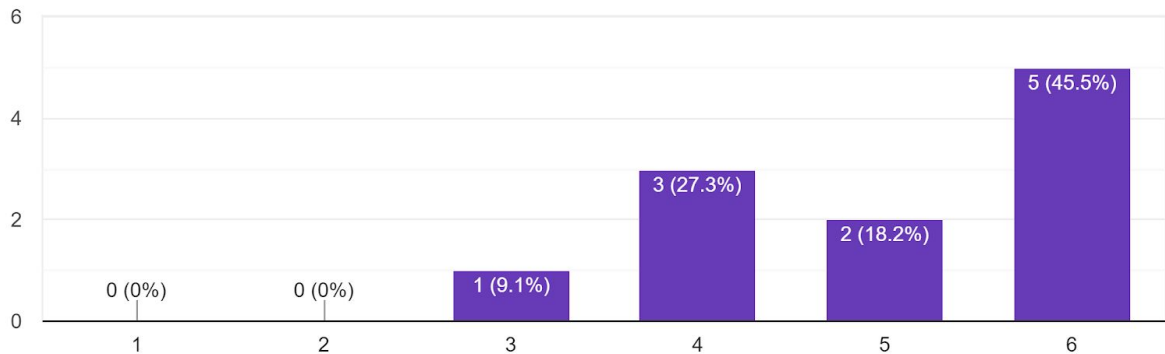
11 responses



These types of results are likely inevitable, but the difficulty that people had with puzzle 2 was all over the place, though most did cite the usual excuse of being over tired.

How difficult did you find puzzle 3?

11 responses



Puzzle 3 was more consistent with most testers finding it challenging and some did not even manage to complete it. This is a good outcome as I wanted this puzzle to be the one where players would prove their mastery over the main mechanic. Likely more levels in between.



Question 5 was a short answer question asking testers if they would be interested in an additional mechanic that gave some blocks a limited amount of time that they could be moved before being combined. Most players said they thought this was a good idea.

Question 6 was a short answer asking the testers what other mechanics they might like to see introduced to the game. Some ideas included unbreakable blocks to break up the grid, limited blocks that players could place themselves, and a special kind of block that requires multiple combinations to change.

**Post Mortem:** The goal of this project was reached. A puzzle game using color matching was created with clearly understandable mechanics and the audio-visual feedback does enhance the experience. With that said it does require much more work. Testers did have a clear understanding of the mechanics and what was happening as they interacted with it due to the simple visual language of the light up squares. Testers also said they mostly enjoyed the color matching mechanic, but wanted to see more and I would have liked to have added at least one more main mechanic to build off of the combining. The puzzles developed for the prototype were hard to test as everyone has different levels of skill, but they were able to help players develop a mastery over the base mechanic. The sound effects helped add to the experience, but unfortunately they were added after testing so I was unable to get testing results to back that claim up.

Moving forward I would like to add more visual effects, a menu, a timer, and more puzzles with at least one more main mechanic to layer on top of the first to keep the game interesting. I would

also like to get test results for these additions as well as the sound that is already in the current build of the game.

### **Annotated Bibliography:**

- *Bejeweled 3*, PopCap Games

*Bejeweled 3* is a simple match three game. It is an extremely successful one however.

One of the keys to it's and others like it's success is the audio-visual feedback that keeps the player engaged throughout the simpler gameplay. The key seems to be to add little audio bites and visual effects to every positive action to ensure that the player constantly feels rewarded.

This is very applicable to my game, as it is based off of simple puzzle mechanics and I want to ensure that the player remains engaged and encouraged to continue. I also want to make sure that the player feels rewarded enough for progress that it successfully balances against the stress of completing the puzzle.

- Brett Taylor, Puzzle Game Magic Secrets

This presentation given at GDC talked about how to create an effective and fun puzzle game. Their main focus was on how human memory and puzzles interact with each other.

This ranged from an individual's capacity to remember puzzle mechanics and how this changes over time to how to reduce unnecessary components so as not to clog up someone's memory, thus taking away from the puzzle.

This will be very applicable to my project as I am making a dedicated puzzle game.

There will not be that many mechanics in it as it is meant to be relatively simple, but a

reference for how far to push my main mechanic and how fast to escalate the difficulty from one puzzle to another will be extremely helpful.

- Jeppe Carlsen, *Limbo*: Balancing Fun and Frustration in Puzzle Design

This presentation was given by Jeppe Carlsen from Playdead. In this presentation he talks about the puzzle designing process for the game known as *Limbo*. He focuses on the balancing challenge and fun. The goal is to challenge the player with immersive puzzles, while avoiding over frustrating them through the use of smart puzzle design.

One of the key features of my intent for this project is to challenge the player and add some tension, while avoiding creating the common pitfall of accidentally making a “rage game.” *Limbo* is a master of this. While its puzzles are embedded into an immersive world and mine is not, the balancing of challenges is always applicable.

- Luis Antonio, *The Art of The Witness*

This presentation talks about the art design process and how the art direction was chosen for *The Witness*. Luis talks about how the art design for the game was created to be an extension of the visual language of the puzzles in the game and the environment that they are found in.

While my game is 2D and will not have the environmental context that is found in *The Witness*, this presentation does make a nice supplement to the other sources in my research. It explains how the art and puzzles can work together in a cohesive visual

language. This may be more applicable to the “moving forward” section of this project, but it is important to begin planning for something of that nature.