Super Hexagon:
Assessment Game Analysis

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Dr. Ben Meijering

Rens van Aggelen - s355132

SUPER HEXAGON

The player move a triangle by pressing the left or right keys, or by left and right clicking on your mouse. You move this triangle along a polygon in a plane. Obstacles and patterns form at the edges of the screen and merge into the sides of the polygon, which you need to dodge. The aim is to dodge these obstacles for as long as possible. Sounds simple, right? Yet this game was a finalist for the IGF award for excellence in design in 2013.

To understand why this game was such a success and why it was so highly appraised, one must look at those elements, shared between all games. These elements have an important function in that they are essential for the foundational structure of games. These formal elements consist of the players, objective, procedures, rules, conflict, boundaries and the outcome. While the dramatic elements are challenge, play, and the premise. In this essay I will analyse Super Hexagon, to reveal the design choices and through these choices to learn more about game design.

Formal Elements:
Players
The first element, the elements of the players, as in how many can play the game, requirements, required knowledge, or special roles are some of the most apparent aspects when first starting up a game. Players must voluntarily accept the rules and constraints of the game if they want to play. Once accepted they transfer to the so called Huizinga's magic circle. In this so called magic circle, the rules of the game make sense to the player, while these rules would not make sense in the real world. To invite the players to play the game and into this magic circle, Super Hexagon, like many others, starts up and opens up into a menu screen with a female voice saying "Super Hexagon". The menu screen shows a big button that says "START GAME" along with the title name and information about how to navigate the menu, while employing a moving background. These pieces come together to invite the player to play the game.

Super Hexagon is in essence made to be played by one player. The role of this sole participant is to try and progress through the game and to learn the skills needed to play it, the game structure being single player versus the game. The game is geared towards achievers, a term coined by Richard Bartle, describing the types of users he found to be playing his multiuser dungeon game (Richard Bartle 1996). The achiever being a player that plays for the achievement of reaching certain objectives. The game does have some hint towards it being more competitive (in the sense of player versus player) due to its inclusion of leader-boards, which can be a basis of bragging rights, and rivalry between players.

Objectives
Every game also needs an objective, something the player can work towards while abiding by the games rules. In Super hexagon, the objective is to survive as long as possible, where partial objectives quickly form in the style of beating your previous record, and reaching the magical number of 60 seconds upon which you unlock a new and harder level. Setting the right objectives can be a hard design wise because the gameplay needs to be challenging to be rewarding for the players, but the games objectives also need to seem achievable.

Super Hexagon succeeds to balance difficulty and achievement chances by making the players inherently set partial objectives for themselves due to Super Hexagons level based system. There are

six levels, hexagon, hexagoner, hexagonest, and the hyper versions of these levels. The first three are automatically unlocked for the player, whereas the hyper versions must be unlocked by the player. Through this gating of levels the designer made sure the players would not frustrate themselves to the point of never playing again by attempting the levels they were not skilled enough for. At its core the game would be a mixture of chase (you need to outrun the obstacles), solution and outwit (you need to start memorizing patterns in the obstacle formations and how to move through them).

Procedures
For the player to be able to reach his objectives, he or she requires procedures. The procedures stand for all the actions and methods of play that players can take to achieve the games objective. In the case of Super Hexagon, the player's objective is to dodge incoming walls and survive for as long as possible, the procedures necessary for this to happen is to allow the player to move. The player is able to move clockwise and counter-clockwise along a polygon that changes its number of sides dynamically as the game lengthens in time. Clicking the right mouse button moves the player avatar clockwise, and clicking the left mouse button moves it counter-clockwise. Even before attempting to play a specific level however, the player must navigate through the menus and select the level he or she wants to attempt. This would be called the starting action, or starting procedure. The resolving action or procedure would be that pressing the 'esc' key allows you to give up your current attempt and move backwards through the menu, and if pressed enough times will exit the game. Hitting a wall is a special action in the sense that it will cause the player to be put in the 'game over' state and he or she must start over. These procedures allow for the game to be played and for the player to progress and attempt to reach his or her objective.

Rules
Building on having a player, objectives, and the player having procedures to reach the objective, rules are set in place to avoid the player taking the route of least resistance, and making the game less challenging and thus less fun for them. The amount of rules is also a factor in the enjoyment that players have playing a game; have too many and players won't remember them all and feel cheated by the game system, have too little and your players will take advantages of potential loopholes or dominant strategies.
In Super Hexagon the rules are painfully clear, your avatar cannot pass through the approaching walls, and if you hit these, the game will be put in the 'game over' state and you will have to start over, resetting your time score. The player is only allowed to move clockwise or counter-clockwise, making it clear how the player is tasked to avoid the obstacles. If these rules were not in place and the player avatar could freely move through, under, or over the obstacles, the objective of staying alive would be accomplished without needing player input, making any challenge void.

Conflict
Conflict arises when players try to accomplish goals of a game within its rules and boundaries, because essentially the rules create conflict. Rules and Boundaries often disallow a more efficient means to reach the objective, making loopholes void and rooting out any dominant strategies that would make the game boring once found. This forces the player to play the game through inefficient channels and thus challenging the player to employ their wits and skills to still reach their objective though indirectly. Often the game presents the player with obstacles he or she must overcome before

progressing, in Super Hexagon the obstacles are quite literally obstacles the player must avoid in the game, rather than a nemesis or opponent that tries to slow down your progress.

Dramatic Elements:
While the previous elements can be considered "formal" as they work together to form the experience we describe as a game, they don't provide an emotional basis to tie the player to the game, and create a lasting memorable experience. These would be the Challenge, Play, and Premise elements.

Challenge
The element of challenge is created through the use of the 5 formal elements discussed earlier. Challenge is necessary to engage the players in a meaningful way, an easy game will bore players while a hard game will frustrate them. As players have a different range of skills, and/or skill levels, challenge can often be described or defined by individual experience. What every player has in common however is that once they are invited to play the game, and try to overcome the challenge they face then they will enter in a state of flow which is a term coined by Csikszentmilhalyi. He created a theory behind flow which states that starting players will often have a low level of ability. Once they progress through the game this level will gradually rise so the challenge must rise as well. If at any time the challenge is too hard or too easy the player is at risk of losing this flow, because the game will be too frustrating or too simple respectively as shown in the diagram.
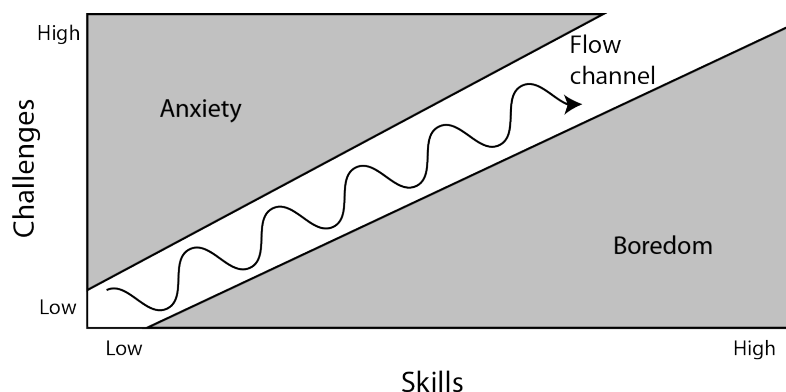
Illustration 1: Flow Channel Line (from "The Art of Game Design" by Jesse Schell, page 141)

Csikszentmilhalyi continues explaining that flow most often occurs within activities that are "goal-directed and bounded by rules [...] that could not be done without the proper skills"(Csikszentmilhalyi 1990). If a person does not have the specific skills necessary for a game, the game becomes meaningless as they are unable to compete. Players that have the skills but are not sure if they are able to beat the game and arrive at a positive end-state, will find it challenging. They will need to dedicate all their attention and skills to achieve the objective and as Csikzentmihalyi states: "People become involved in what they're doing that the activity become spontaneous, almost automatic; they stop being aware of themselves as separate from the actions they are performing" ,(Csikszentmilhalyi 1990) they become immersed in the game. To help the players maintain this immersion and flow, the

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game must have clear goals and feedback. The players need to know what objective they have at what time, and need to receive immediate feedback on their actions when they attempt that objective.

In Super Hexagon, the sense of challenge is applied in such a way that the player is always wanting to try to improve their time score even if it's just a little. Restarting takes no time whatsoever so the barrier to try again is kept low, apart from the slightly taunting announcement of "game over" when you fail to move out of the way of an obstacle. The goal to survive and the feedback when you die is made painfully clear and in such a way that when you die the player knows that he is at fault. The game mechanic is kept simple so the player knows the game isn't cheating in some unseen way. Rather, the game is just challenging which the player can see as a provocation to step up and attempt to improve his or her skills.

Play

This connects back to the dramatic element of "play" because Super Hexagon will thus only appeal to the types of players such as the competitor, the achiever, the artist, the performer(The institute for play and InCa, 2008). These players will enjoy freedom of movement within a well defined structure that can be thought of as play, with the rules and procedures making up the structure.

Premise

The premise establishes a setting or metaphor, which in this case would be a psychedelic 2D plane where the metaphor is that you will lose eventually, it's up to see how long you can survive. Games often need a dramatic premise to set the tone, so the players can become emotionally invested in their outcome, otherwise many games would be too abstract or players wouldn't care. Through exposition of the story, the premise is usually explained and revealed, Super Hexagon however does not have a story of its own. You could argue however that the story is one that the player creates for himself, cultivating the skills needed to unlock new levels and progress through the game and noticing improvement.

Experience

To me this is the genius of Super hexagon, the premise and rules are easily stated and the game is easy to play in theory but incredibly hard to master in practice. The experience that the players have that stick with the game is then one of personal growth, them noticing their skills are one day improved to such a degree that they can indeed beat the magical time of 60 seconds on the normal levels and make it to the hyper variants. Where the process of flow and improving their skills repeats until they get farther and farther within those levels again.   To be fair the other major game experience present is one of futility, the players can get frustrated at themselves or at the game when they are unable to get further in the time span they desire. The game however is remarkably fast to close and open, essentially removing any lingering frustration. The game also starts it soundtracks for various levels and random intervals to keep repeated attempts interesting, the incoming patterns and obstacles that need to be dodged are random too. These make the game a joy to replay and retry again and again, even though it is sometimes futile to do so.

Conclusion

       These eight elements only show a glimpse of the true genius that is the simple game design of Super Hexagon. It invites player with its visually simple art and it's catchy electronic music. It then keeps players playing because the objective is clear and players set their own partial objectives to at least just slightly beating their old time. The game is fun because it challenges the players to improve their skills to be able to dodge things faster and faster, while allowing the player the freedom to go back to easier levels if they so desire. The only comment I could make on improving the game is more content, in the form of more soundtracks, levels, and patterns. Super hexagon, although all it's simplicity is an incredibly complex game at its facets, and it is a game I can wholeheartedly recommend to anyone that is a fan of challenging games.

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