GAM6000-18 Research Methods

Core Mechanics and their effect on Game Development

Literature Review

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# Abstract

This Critical Report is to reflect on how game mechanics in games can change the course of development once implemented. This will show how mechanics are used in games, both good and bad and how these decisions on implementing these mechanics caused the design of the game to change later in development. This change can be from level design to overall gameplay.

# 1. Introduction

## 1.1 The Game

The name of the current project is ‘Koala Rama’. It is a 3D platformer ‘Collectathon’. A ‘Collectathon’ is a slang term used within the gaming community to identify a game in which the player must collect a threshold of items to progress through the game. In order to progress through the game, the player (who plays as a bi-pedal Koala) must find keys to free their fellow Koala friends, to get these keys they must explore the world around them. By using a variety of player mechanics to access different areas of the level. These mechanics are unlocked by collecting the second type of collectable, the more abundant collectable, Eucalyptus leaves. Once a threshold is met the player unlocks an ability so that they can access another part of the level. An example would be after fifty leaves were collected the ability of wall jump would then be unlocked. So then the player can now jump between parallel walls to go to an area they have not access before. Once in the new area the player can go on to collect that areas key and free that areas friend and go on to collect more Leaves. The additional leaves in that area allow the player to unlock a new ability, to go to a new area. This is repeated till the player has visited all the areas in the game and has freed all the friends.

## 1.2 Writers’ Role

The writers’ job in this group project is to firstly plan out the game with other designers, create a design document of the game. The design document contains details of what the game is and what you are able to do with in the game. What you are able to do in the game are the mechanics of the game. So, one of the main tasks the writer was to do is create the prototypes of the player mechanics which will then be optimised later by the group programmer. The second job is to create, import and utilise animations for the player character. The animations are being sourced from (Mixamo.com, 2018). Since there are going to be many mechanics, these need to have some form of visual feedback as talked about by (Cook D, 2006) who goes on to say, “Game Mechanics are rule based systems / simulations that facilitate and encourage a user to explore and learn the properties of their possibility space through the use of feedback mechanisms”. Though this is not a clear definition of game mechanics as a whole, it is compared later with other definitions later in the report. A basic player model was created and used to create the animation states that would then be used and tested, so that later when the main model is done the animation states can simply be retargeted to the newer model whilst maintaining the same data from tests.

## 1.3 Workflow

For our workflow the team have created weekly tasks which is incorporated in our (HacknPlan, 2018). The team have organised between themselves the tasks, and what needed doing first and started those tasks. The writer firstly began with implementing new walking animations as well as creating a boomerang mechanic similar to (The Legend of Zelda: Breath of the Wild,2017) where at any moment if the player has the boomerang equipped, they can aim, throw it and it will curve back to the player for them to catch and rethrow it, if they want too. The throwing animation was done, as well as most of the boomerang mechanics. The only problem is, when a boomerang is thrown it rotates and for it to curve, I need to get the right vector of the halfway point of the distance it travels and since it rotates, the right vector changes constantly, so it comes back in a sort of spiral to the player. This problem was documented for later fix since it is not game breaking at that point in development. This workflow of testing is how we plan to test our game internally throughout the development.

## 1.4 Future planning

The problems to be expected to encounter in the coming weeks, is that more mechanics need implementing, while the Whitebox is already complete. With the implementation of the newer mechanics, they need to be tested and see how well they work and redesign the Whitebox accordingly. The current fear is that so many mechanics are implemented that the level loses its sense of an open area and is just littered with obstacles which can only be used later on. Making the player feel like they can’t do anything as soon as they begin to play the game. A Game that is similar to this is (Yooka-Laylee,2017), as the player is thrown into a world which at first are unable to do much, while going pass parts of the map or seeing activities that are locked due to their low progression. But as the player acquires more abilities that adds variety to gameplay allowing for replay-ability.

# 2.0 Literature Review

## 2.1 What are Game Mechanics?

Game mechanics as described by game designer (Rouse, 2005) are “The guts of a design document” as they “Describe what the player can do in the game world, how they do it, and how that leads to a compelling game experience” (p.310). Which I believe to be an accurate statement as before development has begun, the main designers and team must coordinate their abilities into the design document and strategize the premise of the game, which is the beginnings of the game and its development.

However, a more improved upon definition of game mechanics, some might say comes from (Cook D, 2006) who goes on to say, “Game Mechanics are rule based systems / simulations that facilitate and encourage a user to explore and learn the properties of their possibility space through the use of feedback mechanisms”. The key point in that quote is the feedback mechanisms, the player must have some form of feedback to what they are doing in game, this can be shown by ‘UI’ user-Interface or primarily, Animations.

With these sources, a conclusion could be met to say that the mechanics of a game is something the player is able to do in game which was planned before hand in the design document whilst in Realtime gameplay giving feedback to the player as to the effects of the mechanic. This philosophy is something that the team intends to carry on through the development of the game and its implementation of its mechanics.

## 2.2 Mechanics in games

The amount of player mechanics facilitated to the player, needs further planning and testing, since there is a limit to how much you can implement before it gets too overwhelming for the player and too complicated for the player that they get lost in the control scheme and in turn gives them a reason to stop playing. A video from (WhatCulture Gaming, 2018) created a video detailing well praised games in which contained a mechanic that players did not find enjoyable, through collective reviews of the games. An example of one of the games described with an overwhelming mechanic is the Batman Arkham series: (Arkham Knight, 2015), the player is forced through sections of the game when you must control a tank and destroy other tanks, the presenter of the video, Will Earl, says the reason players hate it, is due to how frequent the missions are and that the missions are duplicates of each other. Resulting in an expression of boredom through repetitiveness. Another example is (Sonic Adventure 2,2001), a game journalist who goes by (ProJared, 2015) who describes that, “the only tolerable parts of the game is when you play as Sonic” as through the game you are forced to play as separate characters. The majority of complaints about the game, came from too much mechanic variety such as; you would be moving at high speeds as is the normal sonic gameplay, however when the next level of the game came, you were now suddenly collecting all the parts of the master emerald, and some levels consisted of the player playing as a robot shooting almost as if a third person shooter, which stems very far from the original sonic gameplay. If you didn’t enjoy a certain type of level it became a pain to do them since they appeared multiple times throughout the game.

## 2.3 Utilising Mechanics

As a problem has been recognised in the previous section about implementing mechanics into the game, the team aim to make the collectable mechanics aspect of the game to not feel like a chore, so though the leaves are abundant the team won’t make it so the level is littered and will place them more so to entice places to go to that particular area. Where there may be a hidden area or a path they didn’t see before. Similar to (Super Mario Odyssey, 2017) with the placement of coins near the edge of level, where a lower edge can be seen and jumped too. Or by seeing coins through a waterfall showing the player they are able to go through or behind the waterfall into an area they might have had trouble finding. This form of design is called ‘Clarity’ by (GDC, 2017) who describes the method of “Naturally drawing the eye places”, which can be used as a form of bread crumbing. To encourage the player to explore areas they tend to naturally look at due to this ‘clarity’ method, by removing objects around what you want the player to look at so they are naturally fixated on it. The team want to fully utilize this method in the level design as to show players paths to newer areas and so fully utilise the mechanics of the game.

## Boomerang Mechanic

At the start of the game development the team knew, for the main character, to incorporate a weapon. A unique weapon with its own mechanic which can be used in more ways than one, the team thought of the boomerang, a weapon you could throw and come back to the player. Almost like the Leviathan Axe from (God of War,2018), however the boomerang would curve and would automatically come back to the player after a certain distance. The boomerang could be used to solve puzzles like knocking a key out of a tree or cutting a rope in the distance. The boomerang could also be used to stun enemies similar to how the boomerang is used in (The legend of Zelda Phantom Hourglass, 2007), the boomerang is not a lethal weapon as is more of a tool used to collect far away items and stun enemies within throwing distance of the boomerang. As the player has this mechanic from the start it is heavily incorporated as to how we design the level, creating far enough distances so that they boomerang is able to travel. Creating wide open spaces with enemies as so the player is able to fully utilise it.

## 2.5 Player Mechanic Progression

The team then thought of how to incorporate how exactly you gain these abilities / mechanics, through gaining progress or through a vendor. Much like how you unlocked abilities in (Yooka-Laylee,2017) as the player would acquire a certain number of items, go to a vendor and choose which ability to unlock using the items they had collected. Though the team will not be utilising the vendor in our game the item threshold is kept. Another inspiration is (Spyro 2- Ripto’s Rage,1999) the player would progress through the levels and notice ladders which were not usable till much later in the game once the player had collected enough gems and given them to the vendor ‘Money Bags’, the player did not have a choice in which ability they unlocked and the order in which you unlocked them was maintained. So that later when you unlocked an ability you can go back to previous levels and unlock new content which was previously inaccessible to the player. By doing this the developer can in a way guide the player as to what they can now do and where they can now explore, it also gives a form of rediscovery when replaying older levels with newer abilities something the writer is keen to recapture in the game.

## 2.6 Mechanics in Level Design

In an interview between GamesRadar.com and Game Director Cory Barlog, famous for his work in the God of War series, he talks about in the newest instalment in the series (gamesradar.com, 2018), that as the development of the game was taking place and depending on what already was done and tested in game. In terms of prototypes in mechanics or level design, they adjusted things accordingly. So, if the level was not specified to a particular mechanic in a particular way, they altered the level depending on what mechanic was then being implemented. Showing that they did not stick to original white boxes of levels and rather evolved the world around the player and what they are able to do in the world and test. Which relates back to (Rouse, 2005) definition of game mechanics “Describe what the player can do in the game world, how they do it, and how that leads to a compelling game experience” (p.310). It shows that the mechanics have an effect on the game world rather than the game world effecting the mechanics of the game.

As with the game the team are creating, Koala Rama. The idea of development is to approach the same way as Cory Barlog did with (God of War, 2018), and to follow the ideology of (Rouse, 2005). That once we have implemented a mechanic into the game, to test it thoroughly in the current version of the Whitebox, and if alterations are needed to be made to fully accustom the new mechanic then they will be added.

## 2.7 Testing Mechanics

Once a mechanic has been implemented into the game, the team needs to see what works and what needs changing, be it the mechanic or the level itself. If the mechanic is not working as intended, or the tester feels like a certain aspect of the mechanic could be improved upon, notes will be made and incorporated later if needed. An example of what is to be expected to receive as feedback for the Boomerang mechanic, which was mentioned previously, is that it doesn’t return to the player properly. Also the throwing animation for the boomerang needs changes because it does not look organic and more so robotic. Once this feedback is received and the issue is clearly how the boomerang operates and not the level. The boomerang mechanic will change rather than the level. However, if feedback from a tester says that the boomerang is unable to hit a certain target due to an obstruction in the level, then changes will be made to the level rather than to the mechanic. This continuous feedback technique will help fine tune every aspect of the game, making for a more enjoyable experience for those who play the final build.

# 3.0 Conclusion

In the introduction the premise of the game was addressed, as well as its accordance with the mechanics it will possess, and how the mechanics relate to previously released games.

During the report, aims were split to show an understanding of, what mechanics in games are, how they are used and how they affect development.

To show what games are, quotes were used from articles written by developers and what they mean to me and my own opinion of what mechanics are based upon their original writings and how I will apply the philosophy during the development of the game.

Once a definition of game mechanics had been established, I went on to say of how they are used in games and how people respond to the game and its mechanics. The games chosen can be praised but due to certain mechanical aspects of them lead to consumers disliking the product. These flaws, of which were brought about due to poor mechanic design and level design, are looked into further later once I talked about how games incorporate the mechanic progression into their game and how I intend to implement the same form of system by progressing after a threshold of items and a once the player has made it to a certain point in the game, combining elements from a variety of games which were also discussed.

A comparison has been shown of how games have properly used game mechanics and how some have not and where those problems lie. These problems were then related back to the project that is being developed. How the game develops around the development of prototyped mechanics has also been addressed in the sense of the game adapts to the laws that were given to it as game mechanics.

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