University of Europe for Applied Sciences

Bachelor Tesis:
Skill Issue

Observing the growth of a player skill in Fighting Games

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Abstract

The fighting game genre is notoriously known as hard to learn and even harder to master, even inaccessible for most players due the high skill level the games demand of their players. The objective of this paper is to discuss elements that are generally not mentioned when discussing what makes fighting games so complex. The discussion mainly focuses on the skill-set necessary to perform well in these games and compares how each skill translates into a different game. Furthermore, possible barriers players might face when starting to play the games, such as motion inputs and execution; and how to overcome them. The paper explores design choices that can teach players how to play fighting game and learn the basic concepts that carry over from one fighting game to another.

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1. Introduction

Fighting games are one of the most influential game genres that had its popularity peak in the 90s and since then had a dedicated and passionate community. (Learned 2017) They are also widely known as a very-hard to get into genre with plenty of entry barriers for new players, commonly referred as “outdated” or “unfair” by journalist and players that are not into these games. Although more modern fighting games attempt to lower the entry level to attract a newer audience, the stigma of the games being too hard prevents most of these new players to stick with the genre.

Why fighting games are considered hard? The YouTube video *“Analysis: Why Fighting Games are Hard?”*(Core-A Gaming 2016) answers that question with the following statement*:* “When people say Fighting Games are hard, they mean is hard to reach a good enough level to enjoy the game, not necessarily hard to win.” That is because fighting games are mostly skill-based games. In the book “*The Digital Culture of Digital Fighting Games*” (Harper 2014) the author supports the idea of fighting games being skill-based games with the statement: “The concept of a fighting game match deciding who has the greater level of skill[…]”.

Furthermore, he classifies Fighting Games using Roger Caillois “*Man, Play and Games*” (2001) definitions for play and game type as *agon* (games of competition).He also explains the concept of *ilinx* (games of vertigo) both types contradict each but understanding that contradiction is necessary for a game as a skill challenge. As he later states that the ideal fighting game match where the deciding factor between the winner and the loser is only their skill. The agon or competition aspect of fighting games is pretty clear as the game itself basically matches between two opponents that both compete to be the winner. The vertigo aspect is a less apparent one; we can easily classify horror game as a ilinx type of game as they give the player a rush of emotions from the unknown and unpredictable. This means that fighting games are not design to make the player feel out of control of their own actions or overwhelmed by the game itself but their purpose is to be a competition of skill.

Skill is extremely important in fighting games, in this paper we will explore in-depth those entry barriers, determining what kind of skill-set is required to perform well, as well as offering new players ways to reach the level necessary to enjoy these games. But, before talking skill we should talk about fighting games.

2. Fighting Games and the Arcades

A *working definition* of fighting games would be, as Todd Harper defines in "*The Culture of Digital Fighting Games"(*2014*)*, the games are about close-quarter combats between the on-screen characters; furthermore, those characters usually have normal and special attacks -or special moves-, players can see the match parameters somewhere in the in-game screen and finally the most important aspect that the games share is that: fighting games are competitive and allow multiplayer competition.

First, we will talk about in this section is the design elements that were born in the arcade-era. Focusing on *Street Fighter II,* a game released in the 90s which found huge success and essentially made the genre what it is today. This game was released in an arcade machine which needed a quarter in order to play, and had only 2 ways of being played; against a series of CPU-controller opponent in what will be later known as "*Arcade Mode*" or against another player. If the player loses, in order for them to continue, they will have to spend another quarter. The catch was that at any point during your match against the CPU if another player inserted a quarter in the machine then a match between the two players would start and the player that won would then be able to continue or start their Arcade Mode. We can say that this system made the players compete with each other where the winner would be able to keep playing.

The arcade era was so important for fighting games because many of their core elements were born during this era. This also includes the lack of interactive tutorials and single player focus, since back then those elements would take extra time to develop and take time for the player, who could be interrupted at any moment by any other player. Other elements would later become the "entry-walls" for newer players.

3. The entry-walls

The website *pressbuttonwin.com* published an article called "*Are fighting games too difficult*" (2019) where it showcases some of the elements that general audience points too when discussing why they don't play fighting games. The article mainly talks about problems with the competitive nature of a typical one versus one game, where one side wins and the other loses. The following problems are the biggest walls that new players might face when playing a fighting game for the first time; lack of good in-game learning tools, hard to learn just by playing the game, lack of single player content, game inputs and execution requirements.

From this point on the fighting game terminology and further description of terms used in this paper can be found in the website: *The Fighting Game Glossary*.

3.1. Learning in a safe space

The three first problems can be summarized in fighting games lack a safe space where a player can play alone and gradually get better as they played, for example in an RPG, like Dragon Quest XI, the player starts in a very easy zone with not a lot of options and they gradually get more options as the game gets gradually more difficult and if the player is not ready yet to face the challenge the game presents they can go back to a previous zone until they are ready. Fighting games don't offer that: the game doesn't change the more the player plays it and outside the very basic functions the game doesn't teach the more in-depths details of the system the player is engaging in -or at least they don't teach it in a natural and intuitive way for newer players. For example, Street Fighter II didn't have a tutorial or even a practice mode when it released, and the current release *Street Fighter V* has explanations of their more complex systems and interactions but they are that, explanations and very specific simulations where the player can "perform" not practice those systems.

To be specific, new fighting games try to give a player of both the most complex inner systems of the game and other systems that carry from one fighting them to another, but as they are complex system they are usually explained in a very long text and if the player is lucky a visual example or task where the player has to use that mechanic in a very controlled environment; which doesn't give room to any kind of experimentation where the player can interiorize the concept and use it in a real match.

What about playing against the machine? Games do offer some sort of single player

modes, the most common are the Versus Mode, Arcade Mode and Survival Mode. In all of these modes you fight against one, several or an infinite amount of CPU controlled opponents with variable difficulty. Fighting against the CPU it's actually a great way to grasp the very basic of the games and getting accustom to the game speed, but it can only get one that far because at some point they start noticing the "patterns" of the CPU's gameplay but then the player adapts to it and no longer becomes a challenge.

Then there is the Training Mode, where players can practice against another place or a computer controller "dummy" that they can give instructions for. This would be the ideal safe space where players can learn at their own pace but training mode can be overwhelming or lack purpose for a new player. Training mode can be a trap for a new player, since it is one of the better ways to improve in a fighting game but mindlessly playing training mode doesn't make anyone better and can be quite dull. From personal experience I know a lot of friends that are not as much into fighting games that said that training mode is a waste of time since they aren't really learning since they are not fighting against an active opponent.

We can try another perspective on this topic: when someone buys a game-set of chess, the game comes with an instruction manual with the rules of the game, which allows the player to play the game in a simple way. But, if a player wants to improve in chess they will eventually glance at chess strategy books. With this example we see that buying the game gives you the tools that the player needs to play the game but doesn't teach the player how to use those tools.

Where can players find the information they need? Every game has a dedicated community despite their size, and they have documented every knock and cranny of their respective game. These communities have easily accessible tutorials and guides for their games, but they are not enough. As one can only get better when playing the game and trying to apply the things they learn in real matches.

One good learning tool fighting games have is the Replay Mode, where players can see replays of their saved matches at variable speeds and even see the inputs that are being pressed in a frame-by-frame manner. This allows players to see where they have made mistakes or what thing the opponent did to them that they didn't know what to do against.

The Replay Mode works great in-tandem with the Training Mode where you would be able to re-enact situations from the replay in the Training mode and trying to find answers to them. Let's say I was fighting ten matches against a friend from which I lost eight and while playing I couldn't comprehend why I was losing. But once I saw the replays in the replay

mode I saw that two things were constantly happening; whenever there was distance between us I ran towards them, and they would hit me as soon as I was close enough to them; then there was one move they did that I couldn't do anything against. So from watching my replays I know that I have to be more patient when approaching my opponent and that there's one move I have to practice against in the training mode. In training mode I configure the dummy to perform the previously mentioned attack, so I can try out which one of my options can do anything about it or how to avoid it.

3.2. Game Inputs

The last point the article showcases is the most relevant to this topic. The article says: *"Traditional fighting game inputs and execution requirements are too difficult."(pressbuttonwin, 2019)* Two things are mentioned here *game inputs* and *execution*. Game inputs refers to both the button mapping of the games, referred as "buttons" from now on, and the dreaded *motion inputs.* In William Ryan's and Martin A. Siegel's academic paper *"Evaluating Interactive Entertainment using Breakdown: Understanding Embodied Learning in Video Games"* (2009), the authors identify though experiments "controller mapping" as one of the many breakpoints where a new player will likely struggle when picking up a new game and specially a new genre. (Ryan and Siegel 2011)

Without having in consideration the movement buttons: left, right, up, down buttons and any combination of the previous (left + down, right + up, etc.), fighting games have a different number of buttons from which the normal attacks are performed. For example, the Street Fighter Franchise has six buttons: three for the three types of punches *(Light Punch, Medium Punch* and *Heavy Punch)* and three for the kicks *(Light Kick, Medium Kick* and *Heavy Kick).* These buttons are displayed and referred to (mostly in writing) as *LP ,MP ,HP* and *LK ,MK ,HK w*hile other franchises like *Blazblue* has four buttons simply called *A, B, C* and *Drive.*

From the players perspective controlling these six basic attack buttons were and are still considered overwhelming by most people. Nonetheless, the actual complexity of this fighting system commences with the combination of these basic attacks in specific orders to trigger special actions. For example in Street Fighter II the combination of the buttons LP and LK at the same time would perform a throw that the other player could not block against. Fig. 1 shows all the general actions from *Blazblue: Central Fiction* that are performed with a simultaneous press of specific buttons.

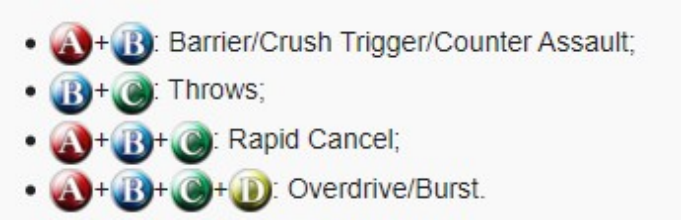

Figure 1: Screenshot of Blazblue: Central Fiction's multiple button actions, from the Dustloop Wiki page of Blazblue: Central Fiction ("BBCF/Controls" 2022)

Like in chess the player has several moves that they can choose from but in order to win the player needs to analyse the situation to recognize which moves are unnecessary at the moment and which ones might be useful. In a fighting game every action or attack is an option that has a proper time and place to use. Eventually when to use each option comes naturally to the player but there are some rules of thumb for these options:

General Attacks: Light attacks are short range fast attacks that are best used close to the opponent and when speed is more necessary than power. Medium attacks cover more ground but are slower and mostly used to control the space between both characters. Heavy attacks are slower but cover a lot more ground than medium or light attacks and are mostly used to keep your opponent away or deal a lot of damage.

Special Actions: Most special actions that are performed by pressing two buttons require a certain amount of resource before they can be used, so they are not always available for the player. Their uses are really specific, for example in Blazblue "*Rapid Cancel*" can only be done when the player has 50% of the meter called "*Heat*" and it's used to cancel the recovery of any attack. Grabs are usually the only action that requires no extra resource but their use is very limited since they can only be performed when the two opponents are really close to each other.

3.3. Motion Inputs

Now onto the nail in the coffin for many players: motion inputs. Harper (2014) mentioned that characters in a fighting game can do either normal attacks or special attacks, we know that normal attacks are performed with attack buttons then how does a player do a special attack? (Not to confuse special attacks with special actions) The answer differs from game to game but in Street Fighter II you could perform the famous fire ball "*Hadouken*" by pressing down, forward + down and forward + any *punch* button (forward is left or right

depending on where the opponent is, forward is basically the direction towards the opponent) assuming the player is playing as series protagonist *Ryu.* The combination of movement and attack buttons required to do a special attack is called *motion input*. (“The Fighting Game Glossary | Infil.Net” n.d.) These motion inputs are commonly displayed by a circle representing the joystick of the controller and a single arrow representing the motion.

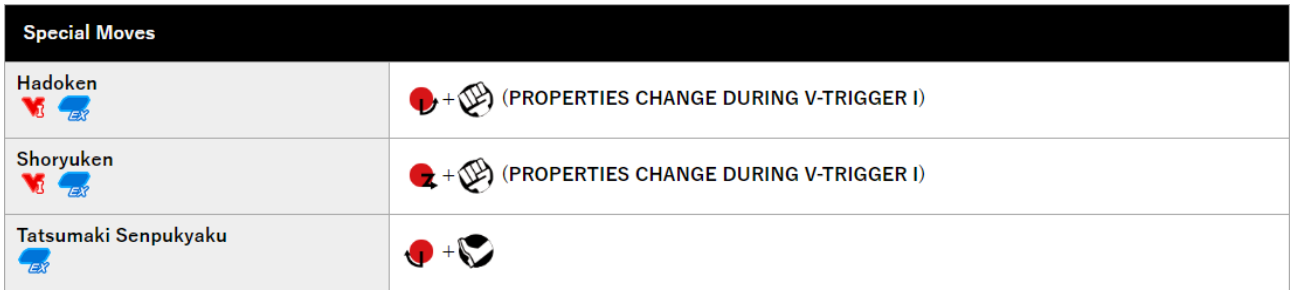

Figure 1: Incomplete command list from Ryu from Street Fighter V, from Capcom’s Official Street Fighter V website (“Move List | RYU | Character Data | CAPCOM:Shadaloo C.R.I.” n.d.)

The most used motion inputs in traditional fighting games are the following:

Quarter-circle input: down, backward/forward + down, backward/forward.

Dragon Punch “DP” input: forward, down, down + forward also known as the Z input from how it is usually displayed in command lists.

Charge input: hold down or backwards then press-up or forward, this is not a very intuitive motion since the player has to hold down the direction button for typically two seconds then release it to the opposite direction.

360 input: from 360º, the player would have to input all directions from left to right or right to left, for example forward, forward + down, down, backward + down, backward, backward + up, up, forward + up.

With motion inputs we encounter the first entry-level barrier that people like to use as an argument. The argument being: Motion inputs were implemented during the arcade-era to create artificial difficulty so the game would take longer to master which meant more quarters for the arcade machine. Which is a completely valid argument. Usually a player would take his time learning to properly learn to do a quarter-circle input into a Hadouken. but then they will need to learn the much more daunting and challenging DP input which for a new player can be hard to understand, visualize and perform.

A new player is encouraged to think that in order to “learn the game” they first have to “be able to play the game” by doing this special attacks otherwise they will always play with less tools than everyone else. Being able to do motion inputs is the first entry-level requirement that “has” to be fulfilled in order to be able to play and enjoy fighting games, this can seem like a chore and players don’t want to bother doing chores in order to enjoy something they want to play in their free time.

The only way of getting better at doing motion inputs is by practising them, which takes time since a player can be really consistent in doing them in the first player position but the motion has a completely different feel when doing them from the second player position, because the input requires either a left or right direction.

Something new players should know is that games have become more lenient and accept “wrong” inputs if they are a close enough; for example: down, down + right, down, right, up+right (if right is the direction towards the opponent) would be registered as a quarter-circle motion. And there are games than don’t even have or required motion inputs in order to do specials.

3.4. Execution

The execution barrier stands for two things, first one is being able to perform any special move or action when required which means mastering motion inputs and memorize the purpose of every button or combination of buttons. The second one is being able to fully the desired or the optimal “*combo*”. A combo is a sequence of attacks that required a specific order and timing, so in any combo there are two things to memorize and practice: order of attacks and timing between said attacks.

Combos began as a bug from Street Fighter II where players could hit and opponent several times before they could act again, this was not intended since the game was balanced around single hits, because in the game if a player would get hit constantly in a short period of time their character would become stunned which made them unable to do anything, but the bug was so popular that it became a feature that almost every fighting game have nowadays.

Newer players believe that the player that can do the longest combos will automatically win as soon as they hit the opponent since they will be able to keep their opponent in a combo for most of the match. New players would try to memorize the long combos and if they were already struggling with motion inputs, doing combos which ask them to perform

said inputs on top of a chain of other buttons might seem very daunting and not worth the effort. We can summarize that execution refers to the ability of doing the necessary things consistently and that execution is the first apparent entry-level barrier players will encounter.

However, players have the wrong assumptions about execution and how to practice it. First of all, longer combos are not always the best or “optimal” combos, not even the most damaging combos are the best combos to do all the time. The best combo a player can do constantly changes depending on the state of the match. Players should think as combos as means towards an end, the value of a combo depends on what it achieves after being performed. Some goals a combo can achieve are: more pressure, screen control, meter gain and finishing a round. More pressure means that a combo ends in a state where the player that finished the combo has an easier time to attack the opponent again after they stand back up; this particular goal is the one that makes it seem like the more experience player is always winning after hitting their opponent once, since they put themselves in a situation where hitting their opponent again is easier.

4. Lowering the entry-level walls

In discussions from different video-game discussion sites (articles, forums) like the article "*Why are Fighting games so hard?*"*(*michnews, 2021*)* people have argued, as this paper mentioned earlier, that both motion inputs and difficult and long combos are products of the arcade-era and that nowadays they're not needed and only helps to make the games less accessible. Fighting game developers seem to listen to those requests while not completely abolishing those elements that fighting game veterans say its part of the genre's identity. Ways that developers approach accessibility are: replacing motion inputs, simple motion inputs, auto-combos, attack chains and one button *supers*.

Replacing motion inputs: Instead of having to press a combination of directions just pressing one direction and a dedicated special move button would do the special move, games would still allow to do the typical motion inputs and some would add different proprieties between doing a special with the dedicated special button and doing them the traditional way. Some games with a dedicated special button are: *Granblue Fantasy Versus, DNF Duel* and *Capcom Fighting Collection.*

Simple Motion inputs: The only motion inputs that the game has are quarter-circle motions. *Dragonball Fighterz* only uses quarter-circle motions for all the characters special moves.

Auto-combos: Players are able to perform automated combos by just pressing repeatedly a button.This gives the player always a way to combo but it's rather limited since the combos are always the same. Some games with auto-combos are: *Dragonball FighterZ, Melty Blood: Type Lumina, Blazblue: CrossTag Battle* and *The King of Fighters XV.*

Attack chains: This gives most -if not all- characters in the game a standard route or rules in how to combo. The standard attack chain is: light to medium to heavy and finish it with a special move, but other games can also have chains like: normal attack into a *command normal* into a special move. Most fighting games have this property of chaining attacks.

One button supers: Super special moves are really strong moves that require the player to fulfill certain condition, the most common one is to have a specific amount of a resource commonly refer as meter (from super meter) or in case of Tekken 7 and DNF Duel a certain amount of low health. These moves usually required some kind of harder than

usual motion input like two times Quarter-circle or 360, but some games have or offer the player a dedicated super button. Games with dedicated super button are: *Tekken 7, DNF Duel* and *Capcom Fighters Collection.*

These additions made fighting games easier to play and are now are less strict about the timing necessary for the combos and the precision of motion inputs, which is a quality of life improvement that have made games feel better to play.

5. Skill in Fighting Games

We have already discussed the initial problems players face when playing fighting games for the first time. But these are the surface-level problems, the dexterous and technical problem, as they are only a part of the overall necessary skill-set for fighting game. We can divide the skill-set necessary for fighting games in three elements: reaction, execution and game knowledge. These three elements work together like cogs in a machine, so if a player is lacking in one area they can usually make up for it in another, as they are dependent of each other. For this segment this paper will compare how the skill-set from fighting games translate to other kinds of competitive games.

Reaction is how fast we are able to recognize what is happening in the screen, process it and respond accordingly; having a good reaction-time is beneficial for both defensive and offensive moments, for example reacting to an attacks faster lets the player punish that attack and get into the offensive. (Ziv, Lidor, and Levin 2022) The time needed to fully react to something can vary and in fighting games it's mostly influential by the "anticipation"; as the player gains more experience they start to learn how their opponent character work or how their opponent themselves play which reduces the number of possible actions that the opponent can make to just a few, which makes easier to anticipate and react accordingly. ("On Reaction Times: The Complete KI Guide" n.d.) In a FPS (first-person shooter) game like *Counter Strike* reaction time is needed to be able to aim at an enemies head as fast a possible when they become visible on-screen, if the player is looking right at the centre of the map then it will take more time for them to aim at the enemy's head but if they anticipate where the enemy might come from they can't already aim at that location so it will reduce the time necessary to react and aim.

This paper previously explored execution, but to summarize: execution is the ability of performing the desired actions in any situation without failing; execution is developed by practising both in training mode and in matches as performing under the stress of a real match can result in failing in execution. The term "execution" doesn't exist in FPS games, but it can be directly compared with the aiming skill of a player, for FPS being able to aim properly during stressful situation is key for a good player as missing a single shot can be all it takes to get shot instead. A better example would be RTS (real-time strategy) games like *Starcraft* where players have to constantly executing different actions in a fast-pace, these actions include mouse presses and several keyboard "macros" each bind to a different action.

Game knowledge is the broadest element as includes the information the player knows

about the game itself and knowledge of the opponent. Knowledge about the game is essentially what lets the player execute the combos they know and prepare for what the opponent character can do to reduce reaction time; it also allows the player to know when there's an opening to attack, when to take risk and the different ways to break an opponent defence. Knowledge of the opponent is acknowledging their gameplay patterns, what they like to do and they don't do, determining how much the opponent knows about the game and the player character, but specially what the opponent is most likely to do in the next interaction. Game knowledge is the one aspect of fighting games that players are always learning as the play more and more of the game, players by playing the game learn the ins and out of said game and by playing against different opponents they start learning how the other players play and the similarities between players. The best game to compare to is Chess, game knowledge translates to the strategies and tactics of chess and which one the player should do or which one the opponent is likely to do and knowledge of the opponent would be "what are my opponent's next moves?".("Mind Games: Who Is Doing the Playing?" 2008) In high level play of fighting game, just like chess, both players try to be "one turn" ahead of each other.

6. Conclusion

As this paper has discussed the most efficient way to pass the entry-level barriers and develop the necessary skills to enjoy a fighting game at it's fullest is to play and practice in order to get gradually better. Striving to be better and improvement is the main appeal that brings players back to fighting games. When a new player starts a fighting game they are mostly focused on winning, or more likely avoid losing; so when they inevitably lose they feel bad, and they stop playing. But if that way of thinking changes to "improving little by little every match" winning or losing becomes not as important. And wins eventually come when playing with this mentality. If winning is all there is then there would be no need of fighting strong opponents, as it's easier to win against weaker opponents or even the machine. But that only grants limited satisfaction compared to beating someone that seemed impossible to defeat before, or even being able to finally do that combo in a real match that they practiced in training mode.

There also has to be a transparency in the design of fighting games where players can find the required information inside the game and in an intuitive way. This should be done in the single player mode where the game gradually teaches games mechanics in a way that feels rewarding to the player when they performed. Single-player mode is the closest that the player has for a safe-space inside the game. That's why the project will have a focus on a single-player mode that will teach the player from the beginning how to play the game without relying only on blocks of text. Single-player mode is the closest that the player has for a safe-space inside the game, where the game can guide the player while they play.

Fighting games are "complete" games where a character comes with all their tools available from the start which can overwhelm a new player. That is why taking away these tools and giving the back gradually when they become more necessary for the player as the game gets harder is also a way for the player to build familiarity with the most basic tools of the game. The single-player mode of the project will follow this approach by limiting the amount of options the player has in order to assimilate those options before moving on to more complex ones..

This thesis project will give the player the tools to learn the basic concepts of a fighting game. It should be an entry-point for players to easily reach the aforementioned skill level necessary to enjoy fighting games, without having to worry about the technical skill barriers.

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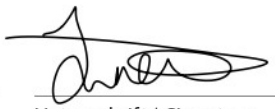
05/10/2022 Berlin	
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