A Case Study Tracing the Design Iteration Trajectory in a Youth Game Design Summer Camp

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Abstract

The case study research reported in this paper followed the iterative design trajectory of youth

game designers (ages 11-17) in a week-long summer game design camp, focused on the

fundamentals of video game design. Drawing on data from a daily conceptual pitch and feedback

activity, the research team traced the iterative design trajectory for one team, providing a detailed

case study. Findings detail two major iterations within their week-long design trajectory

following their shift from initial concepts to interacting systems and their increased focus on

player experience. These trajectories were analyzed in relation to a learning environment design

framework that informed the camp, explicating the ways these youth game designers engaged in

practices, thinking, and dispositions important to game design.

Keywords: case study, design thinking, game design, informal learning environments, iterative

design, summer camps, systems thinking

Purpose

Researchers investigated iterative design activity in a week-long youth game design summer camp. Campers, aged 11-17, worked in small groups to design an original video game concept, culminating in a final exhibition to family, educators, and local game designers. The camp focused on supporting novice youth designers in the creation of their video game idea by engaging in realistic game design processes, such as iteration, prototyping, playtesting, pitching, and exhibition. The pitch activity, in particular, was considered crucial to each group's success: near the end of each day, campers pitched their video game ideas to peers and instructors and received constructive feedback on their designs. This dialogue helped the campers iterate their designs and also improved their ability to receive critical feedback.

This research sought to understand how this feedback affected each team's design trajectory and relate this to the framework informing the camp. This initial research sets a research agenda for subsequent studies seeking to understand the iterative process of design among youth game designers. It might also inform the design of summer camps and other informal learning environments, specifically those with activities supporting learners to engage in design and systems thinking.

Theoretical Framework

The researchers integrated theories, principles, and practices from art education, game design, design studies, and others—grounding the learning environment design with a constructionist view of learning. Constructionism posits that meaningful learning happens through the act of doing (Dewey, 1916/1997), experimenting (Kafai, 2006; Papert, 1993), iteratively designing (Simon, 1995), and creating projects (Resnick & Rosenbaum, 2013). Although we elaborate on the framework more fully in previous work (Valentine, Jensen, Olson,

& Thomas, 2016), two key features are summarized here as they apply to the pitch activity: art

and design iteration and considerations for audience, critique, and exhibition. Table 1 is included

to provide additional details regarding theories, principles, and practices informing specific camp

activities.

Table 1

Youth Game Design Camp Learning Environment Framework

Theories, Principles, and Practices	**Learning Environment Design**
Art and Design Iteration	
• Studio habits of mind: developing craft, engaging and persisting, envisioning, expressing, observing, reflecting, stretching and exploring, and understanding the art world (Hetland, Winner, Veenema, & Sheridan, 2013) • "Trajectory of participation that values progress, failure, iteration, and reflection as learning outcomes" (Halverson & Sheridan, 2014, p. 638)	• Studio-like structure for learning environment • Iterative design process: opportunities to express and respond to critiques as well as reflect on and articulate their process • Daily pitching activity with feedback • Final day exhibition to outside audience
• Foundational game design knowledge such as game mechanics, systems, art and aesthetics, writing and storytelling, player experience, player choice, understanding design, and interactivity (Salen, 2007; Salen & Zimmerman, 2004)	• Support learners to gain confidence with the language and grammar of game design (e.g., vertical slice, playtesting, 2.5D perspective) • Support learners to engage in common game design practices (e.g., pitching, prototyping, playtesting)
Systems Thinking • Systems thinking in game design is critical to being able to deconstruct and construct interactive systems of play. Games are built out of interlocking systems of game rules and procedures (Salen & Zimmerman, 2004), often called "mechanics." • Systems Thinking Practices: "investigating a complex system as a whole, understanding the relationships within a system, thinking in levels, communication information about a system, and defining systems and managing complexity" (Weintrop et al., 2015, p. 135)	• Iterative prototyping to see how changing one part of a system (such as a dice rolling mechanic) affects other parts of the system (e.g., player experience, turn taking) • Supporting learners to communicate information about game mechanics and systems (as well as relationships within and across systems).
Design Thinking • Dispositions of designers (Owen, 2007): being "directed toward inventing," but framed by human- and environmentally-centered foci" (p. 24) among others (e.g., a predisposition towards multifunctionality, an affinity for teamwork, creative, systematic, able to visualize and use language as tools, bias for adaptivity, systematic vision, a facility for avoiding the necessity of choice • Five designerly ways of knowing including tackling "'ill-defined' problems," and using "'codes' that	• Immersing and supporting learners in the iterative design process

Theories, Principles, and Practices	Learning Environment Design
translate abstract requirements into concrete objects" (N. Cross, 1982, p. 226) • Problem framing: an activity that can redefine the problem space and lead to innovative design solutions (K. Dorst, 2011)	
Computational Thinking • Four practices articulated in Scratch Ed's Creative Computing: experimenting and iterating, testing and debugging, reusing and remixing, abstracting and modularizing (Brennan, Balch, & Chung, 2014) • "[T]aking an approach to solving problems, designing systems and understanding human behavior that draws on concepts fundamental to computing" (Wing, 2008, p. 3717)	• use computer code to convert their game ideas into a more functional and tangible reality. • Use the Creative Computing rubrics (Brennan et al., 2014) for assessing students' computational thinking
Play-Design Research Cycle	

• Designers should play games often, across genres, from many cultures, and spanning time (Gibson, 2015; Salen, 2007; Schell, 2015)
• "People who wish to design games should play games. Lots of them" (Garfield & Selinker, 2011, p. 7)
• "[C]onnected gaming" can "bring playing and making together" (Kafai & Burke, 2016, pp. 129–130)
	• Integrate a play-design (research) activity in order to:
	  o provide campers opportunities to engage with the tools and grammar of games and game design
	  o examine the long history of games and game genres
	  o pay attention to features (e.g., mechanics, art styles, etc.) across these games
	  o consider the potential affordances of games
	  o integrate features and affordances from these artifacts into their designs and pitch their designs using the grammar of game design and art creation

Audience, Critique, and Exhibition	
• "playcentric approach" to game design emphasizing the importance of design that focuses not only on the formal, dramatic, and dynamic elements of a game, but all of these through the lens of designing a player experience (Fullerton, 2014)	• provide opportunities for learners to engage with multiple audiences to give and receive critique as well as exhibit prototypes of their game ideas. • orient learners to the important role of the audience/player, giving and receiving critique, and the process and concerns of exhibiting a work or product in a public space • leaners engage in rapid prototyping, pitching, and playtesting each other's games often with the goal of understanding the various ways their game is experienced. On the final day of camp, learners spent the last half of the day exhibiting their game to an external audience of parents, local game designers, and campers enrolled in the other game design camps.

Art and Design Iteration

The first considerations for this summer camp design were *art and design iterations* within a studio-like learning environment. This environment prioritized the iterative aspects of the design process, affording learners opportunities to express themselves and respond to critiques as well as reflect on and articulate their processes. According to Halverson and Sheridan (2014), "these methods point to the creation of a trajectory of participation that values progress, failure, iteration, and reflection as learning outcomes" (p. 638). A number of camp activities supported the iterative aspect of the design process. For example, campers exhibited their game designs to an outside audience on the final day and pitched their games each day to the camp instructors and/or fellow campers.

The overall camp design also sought to support the youth game designers in gaining confidence through immersion in the language and grammar of game design (e.g., "playtesting," "2.5D perspective") and the replication of professional game design practices (e.g., prototyping, concept art). This follows from the work of game researchers like Salen and Zimmerman (2004) and Salen (2007), who explicated foundational game design knowledge such as game mechanics, systems, art and aesthetics, writing and storytelling, player experience, player choice, understanding design, and interactivity. For example, throughout the week, the game designers pitched and then refined their game design concepts and stories to simple, 30-second pitches, to complex narratives with more developed characters and core ideas (e.g., branching narratives, victory conditions, character diversity). A pitch that may have started out as game X meets game Y might develop into a fleshed-out narrative with a protagonist, antagonist, and major plot points mapped out.

The camp also sought to support learners' systems and design thinking. Systems thinking in game design is critical to being able to deconstruct and construct interactive systems of play, often called "mechanics" (Salen & Zimmerman, 2004). The complexity of systems thinking directs game designers to consider how the rules and mechanics govern the game's play space and how they interact. Regarding design thinking, various frameworks exist that detail the way designers engage in their practice (e.g., Cross, 1982; Cross, 2011; Dorst, 2006; Owen, 2007). Owen, for example, describes dispositions of designers as being "directed toward inventing," but framed by human- and environmentally-centered foci" (p. 24), among others (see Table 1). In this camp's learning environment design, we sought to foster many of these design thinking characteristics by immersing and supporting learners in the iterative design process. An example might be young designers explaining their game designs' mechanics, in essence, how those games would be played by potential players and how the various game systems might interact. Even though the games were not coded and developed, it was their job to explain to others how their game would play out in theory, whether through the use of paper prototypes and/or simulating the experience with the use of a game controller.

Audience, Critique, and Exhibition

Another aspect of the framework for the learning environment design aimed to provide opportunities for learners to engage with multiple audiences to give and receive critique as well as exhibit prototypes of their game ideas. The goal was to orient learners to the important role of the audience/player, giving and receiving critique, and the process and concerns of exhibiting a work or product in a public space. We drew on Fullerton's (2014) "playcentric approach" to game design, where she emphasizes the importance of design that focuses not only on the formal, dramatic, and dynamic elements of a game, but all of these through the lens of designing

a player experience. To support this activity, leaners engaged in rapid prototyping, pitching, and playtesting each other's games often, with the goal of understanding the various ways their game was experienced. On the final day of camp, learners spent the last half of the day exhibiting their game to an external audience of family, local game designers, educators, and campers enrolled in the other game design camps.

Research Methods, Data Sources, and Analysis

To understand campers' iterative design process through pitches and feedback, instrumental case study was used, allowing for a focus on the complexities of a phenomenon within a single case and across multiple cases (Baxter & Jack, 2008; Stake, 2005). The case for this study focuses on understanding the ways in which game designs were iterated by youth game designers, especially in relation to the feedback given during their daily pitch activities. The research questions guiding this investigation asked:

> How did youth game designers iterate and pitch their video game designs over the course of a week-long game design summer camp?

> What elements of game design, design thinking, and systems thinking manifested in youths' game iterations?

> Over the course of two years (2014-2015) the researchers collected audio, video, and artifact data, as well as field notes, to capture nearly the entire design process from start to finish. This involved microphone and camera placement for each design team (3-5 students), recording continuously throughout each camp. The research team used holistic coding (chunking) to identify and then transcribe "design episodes," pivotal design interactions among each team, that represented some notable aspect of game design, design thinking, or other aspects of the framework. The pitching sessions and final exhibitions were recorded and coded as well.

Data was further analyzed to better understand the trajectory of design iteration during the pitch and critique activity. This included nine design teams (39 students) over the course of two years. Using the pitch and critique activity audio, video, transcriptions, and artifacts, the research team organized the data chronologically by team. Data was then organized by teams to show a trajectory of change among the teams' designs, broken down by elements (e.g., genre, perspective, narrative, mechanics) and feedback (see Tables 2 and 3).

A list of codes was continually revised by the research team to refine operational definitions of the game design practices (e.g., playtesting, prototyping, pitching), ways of thinking, and dispositions articulated in the game design learning environment framework (Table 1). The research team shared notes and analytic memos to support this refinement process and then coded the data sets individually, coming together to discuss analytic decisions until there was agreement. The team continued to analyze the design episodes using second cycle pattern coding (Miles, Huberman, & Saldaña, 2014), this time focusing on broader themes and patterns in the iterative design process.

Results and Discussion

This section describes the design trajectory of one team's game, *Phoenix*, a first-person, action thriller firefighting game, to illustrate the pitch activity across the five days of camp. This allowed for a detailed analysis of this particular case. The team pitched *Phoenix* four separate times during the camp. The daily pitches illustrated the changes and design iterations they made throughout the week (see Table 2). They iterated almost every aspect of their game except perspective, genre, and a few other minor details. Some changes appeared in response to feedback, while others manifested from collaborative decisions among the team. In the following

sections, two salient shifts in the groups' trajectory are detailed: 1) a shift from concepts to interacting systems and 2) an increased focus on player experience.

Shift from Concepts to Interacting Systems

A prominent trend in the *Phoenix* pitch iterations involved a shift from a general explication of a concept, such as seen with the initial idea of a firefighter suffering from post-traumatic stress syndrome (PTSD), towards a more robust articulation of how multiple systems interact during gameplay. For example, during their Day 2 pitch, the team pitches their firefighting game idea by focusing on the main character, a firefighter struggling with PTSD as a result of a failed "mission" where the main character's best friend died. The implication of playing as a character with PTSD is a simplistic one; they only indicate that too much stress will cause the player to lose. In their pitch they state, "depending on what you do, you can become more or less stressed. If you become way too stressed, you will lose." Although they provide other relevant details regarding player navigation, the environment, and the start of a backstory for the game, there is little in their pitch to help others visualize the game play. Feedback and questions from their first pitch focused on PTSD and ideas for iterating the stress mechanic (see Table 3, D2.3 – D2.6). It was not clear to their peers how stress manifested during gameplay. One peer offered the following suggestion: "At some of the levels, put some things in that were similar to the mission he failed at because that often triggers PTSD...it would really give the player a feel for how your character sees things." One of the camp instructors built on this suggestion, recommending the use of flashbacks.

The iteration of the stress system and flashback mechanics progressed over the next several days, starting with an if/then conditional ("once you're in a building for too long, you'll start to get stressed") and the subsequent gameplay of this stress ("the character will have

flashbacks"). They also start to consider the way this flashback mechanic relates to other aspects of gameplay ("it'll distract you from the mission, you'll have less time overall"). By the start of the fifth day, the team further refines the stress system, creating a stress meter related to gameplay situations that cause and relieve stress (e.g., destructible environment factors, time spent fighting fires). In their subsequent pitch, the stress meter and flashbacks are tied together, indicating a system of interaction rather than two independent mechanics. By the time the team exhibits their game, they connected the stress system to other systems, such as the narrative and gameplay consequences. Although this stress system example only highlights one aspect of the iteration, by Day 5, it is evident that they are able to articulate the way multiple systems might interact and to understand relationships within a system (Weintrop et al., 2015). In addition, campers increased their use of grammar and language of the field, discussing foundational game design concepts like mechanics, systems, player choice, interactivity, and player outcomes (Salen, 2007; Salen & Zimmerman, 2004).

Increased Focus on Player Experience

A major goal for the game design camp was to orient campers to the experiences of their potential players—what Fullerton (2014) refers to as a "playcentric" approach to game design. Many game designers emphasize the importance of focusing on the player (Salen, 2007) and framing designs based on human-centered foci for effective design (Owen, 2007). The playcentric focus intensified across the iteration trajectory of the *Phoenix* team, especially through their elaboration on mechanics dealing with player choice, action, and outcome (Salen, 2007). Further, their discussion of art style shifted from the simple description of "realistic" to discussions of the games art and its effect on perspective and emotional response. They talked about art style in terms of what it's like to embody the protagonist: "The art style is very

realistic-looking. It is in first-person, meaning you play it from the character's eyes, and it is very emotional." The team was thoughtful about the type of game they were making—a lived, stressful experience for the player. PTSD is a serious subject and their game sought to support the player in understanding the ways in which PTSD manifests, is triggered, alleviated, and the consequences for engaging in stressful situations. The stress system and art style are two ways they sought to affect player experience, along with the game's branching narrative (see Table 2). The following excerpt is part of their pitch from the exhibition on the last day of camp detailing the branching narrative as it relates to the game's morality system:

> There's also a system where it's like you have to choose the right – it's like a morality system, so if you choose the right dialogue based on your morals or anything like that, you'll get experience points. By the end of the game, if you do not have enough experience points, it'll be impossible to finish the game, and so, by that aspect, you change the ending depending on how you play the game. There will either be a good ending or a bad ending… it's called a branching narrative.

Although not detailed in this excerpt, the good ending is the win state and the bad ending is that your character commits suicide. Though the "bad ending" was greeted with some measure of shock, their research indicated that PTSD and suicide are related, while communicating that their game was already tackling a serious issue with serious consequences. At the beginning, the pitch for team *Phoenix* was more "here is our story," however, by the end it is "this is how we will make the player feel as this character."

There are more examples of design iteration within their pitches, including the expansion of environmental mechanics involving water and fire. Also notable is their work to flesh out the

main character's backstory. For example, during the Day 2 pitch, they describe the main

character in general terms:

> You play as a firefighter who has suffered PTSD after his failing his first mission…he
>
> doesn't want to just quit because that's kind of one of his character traits. So, he just keeps
>
> going like fighting fires because he wants to redeem himself.

By the fourth day, they introduce new characters with intertwined relationships, even including a

choice to select the gender of the main firefighter:

> You play as a fireman who wants to redeem himself as a fireman and his relationship
>
> with his best friend. You can choose your gender at the beginning, so you can be either a
>
> male or a female, and there are a couple different main characters that we have here for
>
> the concept art. There's the character himself, like the female and male version, and then
>
> there is his best friend, which is Peter Jackson and Peter Jackson's sister, which is
>
> actually the person that dies in the fire.

This marks the forward progression of fleshing out their characters and narrative design. As

shown in this focused case exemplar, numerous concepts from the framework manifest in

Phoenix's pitch iteration trajectory.

Significance

Although written in 1982, Cross's statement concerning education and design is still

relevant: "[t]he education path to design as a discipline forces us to consider the nature of this

general subject of design, what it is that we are seeking to develop in the individual student, and

how this development can be structured for learning" (p. 226). The youth game design pitch

discussed here—and its iterative design trajectory—is only one of the nine cases analyzed by the

research team. However, the two salient shifts that emerged were common among the other

design teams as well, to say nothing of the other shifts that happened within the *Phoenix* team alone. Most groups exhibited a greater grasp of the grammar of the field, an increased ability to create and combine complex game mechanics and systems, and a better understanding of the importance of player experience. As we seek to better understand how best to support iterative design activity among youth game designers, we are encouraged by youths' ability to engage in systems thinking and take a playcentric approach in their designs. Informal learning environments like the game design summer camps discussed here continue to be an overlooked phenomenon in the educational space. They provide an opportunity to support young designers not only about the iterative aspects of game design, but also art and design iteration as a whole. Iteration and constructive feedback are an important part of playcentric game design cycle but also important to broader conceptions of design. The research here can go on to inform similar learning experiences in both formal and informal settings. The researchers will next analyze the pitch data from other groups as well as the daily design process itself in order to garner a deeper understanding of youth game design and how it manifests aspects of systems thinking, design thinking, and computational thinking, among other learning processes.

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Table 2

Iteration trajectory of Phoenix game as shown in pitches on days 2, 4, and 5. Elements of the pitch are organized by categories (e.g., perspective, genre) to track specific aspects of iteration activity. Codes (e.g., D2.5) appear at the end of certain categories to indicate revisions in response to peer and instructor feedback elaborated in Table 2.

Elements from First Pitch (Day 2)	Elements from Second Pitch (Day 4)	Elements from Third Pitch (Day 5)	Elements from Fourth Pitch/Exhibition (Day 5)
Perspective: first-person	**Perspective:** first-person	**Perspective:** first-person	**Perspective:** first-person
Genre: action adventure	**Genre:** action thriller	**Genre:** action game	**Genre:** action thriller
Narrative/Story: After your first mission, you fail, someone dies, and you feel very bad. So you feel like you have failed your job. So you try to save as many as possible…his best friend's sister is the person he was trying to save and so she died. Then he has to kind of like redeem himself for his friends like to get his relationship back together. Goal: you save people from fires; you put out fires; save people's lives	**Narrative/Story:** "Branching narrative": it takes place in Phoenix, Arizona. You play as a fireman who is sent on a deployment to a building and he has to save someone inside but he fails, and so, he gets injured while he was in the building, and he has to go to the hospital. When he wakes up, he's diagnosed with PTSD. And so, from that point on, he has to redeem himself as a fireman and try to fix the rest of the fires in the city. [**D2.3**]	**Narrative/Story:** set in Phoenix, Arizona. There is a story line that involves your best friend's sister caught in a fire that you were supposed to put out and save her. But you failed, and so there's kind of a conflict there. After the initial fail, like after that, he was taken to the hospital and stuff, and he went through like some therapy, but then after that, he pretended he was fine so he could go back to work because he feels he should redeem himself. [**D2.4, D2.5, D4.1**]	**Narrative/Story:** set in Phoenix, Arizona. You play as a firefighter, who is sent on his first mission trying to save someone from a building, and he fails that mission. He gets injured and he ends up in the hospital and he gets diagnosed with PTSD. And he ends up hiding that from the rest of his crewmembers, and he starts going back into firefighting to redeem himself. Later on, the player will find out that he actually was failing he failed to save his best friend's sister, and so, there's kind of a conflict between the main character and his best friend that he has to resolve by saving more people and choosing the right dialogue choices and you talk to your best friend. [**D2.3, D2.4, D4.1, D4.9**]
Characters: play as a firefighter who has suffered PTSD after his failing his first mission… he doesn't want to just quit because that's kind of one of his character traits. So he just keeps going like fighting fires because he wants to redeem himself.	**Characters:** play as a fireman, wants to redeem himself as a fireman and his relationship with his best friend. You can choose your gender at the beginning, so you can be either a male or a female, and there are a couple different main characters that we have here for the concept art. There's the character himself, like the female and male version, and then there is his best friend, which is Peter Jackson and Peter Jackson's sister, which is actually the person that dies in the fire.	**Characters:** And then there are also gonna be _____ because firefighters don't _____ so there's like a team of firefighter that you work with. But they don't actually interfere with your main goal. They just put out fires like alongside you so that it makes more sense realistically, and also that it doesn't take too long to go through the levels. [**D4.8**]	**Characters:** there's a relationship that goes on between the main character and his best friend that sort of plays out throughout the game, and it will decide like if it has to do with your best friend and the main character, so it changes depending on how you play the game. the player will have a choice to choose which gender at the beginning of the game

Elements from First Pitch (Day 2)	Elements from Second Pitch (Day 4)	Elements from Third Pitch (Day 5)	Elements from Fourth Pitch/Exhibition (Day 5)
Systems/Mechanics	*Systems/Mechanics*	*Systems/Mechanics*	*Systems/Mechanics*
Destructible environment: fires occur randomly	**Destructible environment:** there's mechanics where you can like there's a destructible environment. There is an analysis mode so you can see what is about to be destroyed and where the fire is going to spread…you have to avoid obstacles while you're in a level.	**Destructible environment:** And there is lots of like destructible environments, so when you're *[inaudible]* doors and windows, and things like that, in.	**Destructible environment:** you can react to the environment, destroy doors and windows to make sure that you can make your way to the people that you need to save.
Navigation: You have to use strategy like finding the fastest route to the house	**Navigation:** You have to navigate to the level yourself, like find the quickest route to it so that the fire doesn't spread too quickly.	**Navigation:** *[Inaudible]*. And then for mechanics, you have *[inaudible]* so you have to navigate to the level that you're trying *[inaudible]* because the fire won't spread as much.	**Navigation:** And there's also a navigation aspect of the game, so you have to find the fastest way to the building that he needs to save people from, and if you're not fast enough, it'll be burned down by the time you get there, so you just fail the mission automatically.
Stress: Depending on what you do, you can become more or less stressed. If you become way too stressed, you will lose.	**Stress:** there's a stress system where once you're in a building for too long, you'll start to get stressed, and the character will have flashbacks. When you're flashing back, it'll distract you from the mission. You'll have less time overall. [**D2.3, D2.5, D2.6**]	**Stress:** Okay. So we have a mechanic where it's like the stress meter and whenever you're in stressful situations it starts to fill up. And once it gets completely full, you'll have like flashbacks and stuff, and he'll like lose control temporarily. But once you like move away from the situation or solve it, it'll go back down to zero percent. And then also like during the actual story, it will have like the character showing like PTSD sometimes [**D2.3, D4.1, D4.5**]	**Stress:** There is a stress mechanic where when you're in a level, when you're in a dangerous situation, there will be sort of a stress meter on the bottom left that'll go up as you're in a dangerous situation, and you have to deal with it in a timely manner, or you have to avoid it, and if you're near it for too long, the stress meter will fill up, and at that point, you will lose control of your character and he'll start having flashbacks and things like that and all it'll sort of disrupt your progress in the level. And if you fail that level, you might have to start over at the beginning. [**D2.3, D4.1, D4.5**]
Dialogue choices/experience points/Branching narrative (affects ending): N/A	**Dialogue choices/experience points/Branching narrative (affects ending):** if you don't save enough people from fires, over time, if you don't make the right dialogue choices, you won't have enough in experience points to finish the	**Dialogue choices/experience points/Branching narrative (affects ending):** And when you're taking to your friend, there will be like *[inaudible]* voice for dialogue. depending on how many people you can	**Dialogue choices/experience points/Branching narrative (affects ending):** There's also a system where it's like you have to choose the right it's like a morality system, so if you choose the right dialogue based on your morals or anything

Elements from First Pitch (Day 2)	Elements from Second Pitch (Day 4)	Elements from Third Pitch (Day 5)	Elements from Fourth Pitch/Exhibition (Day 5)
	final mission, and then that will change the ending of the story. Depending on how you play the game and what decisions you make, the ending of the story will change. [**elaborates in back and forth with instructors.**: The point of if you chose one let's say there's two selections of text, one of them would count points towards the good ending, and the other one could count towards the point it can add a point counting towards the bad ending in the program. The bad ending is committing suicide after failing the final mission. The good ending is making up with your best friend. [**D4.4**]	save through the levels of the game, *[inaudible]*. *[Inaudible]* if you don't save as many people as you should, you will end up like _____. And if you save a lot of people, you will *[inaudible]*. And also based on your choices in dialogue, it will *[inaudible]*. [**D4.4**] **Water Mechanic**: there is also like a water mechanic, and so you'll have a large supply of water, but *[inaudible]* so you have to _____ level *[inaudible]*. [**D4.10**]	like that, you'll get experience points. By the end of the game, if you do not have enough experience points, it'll be impossible to finish the game, and so, by that aspect, you change the ending depending on how you play the game. There will either be a good ending or a bad ending… it's called a branching narrative. [**D4.4**]
Concept art: N/A	**Concept art:** They have character sketches; user interface; The character himself, like the female and male version, and then there is his best friend, which is Peter Jackson and Peter Jackson's sister	**Concept art:**	**Concept art:** we have concept art over there so you can see our characters
Made for: PC	**Made for**: PC	**Made for**: PC	**Made for**: PC
Tools: there are different kinds of tools you use like ladders and stuff to get into the house quickly	**Tools**: [**elaborate after being questioned**] You use a fire ax to cut down all the debris and stuff, but then you also have the hose to, obviously, put out the fires. Then you have the ladder if someone if you know that someone is stuck upstairs and you want to get there quickly, you use the…And the stairs are blocked… Yeah, there's supposed to be a verticality thing to the levels, where you can move vertically just to get to the people that you need to get to without having going through the house. [**D4.6**]	**Tools**: *[Inaudible]* sprays water while you're trying to climb to get to higher levels of the structure of what you're gonna save people in. And there's a fire *[inaudible]* and stuff. [**D4.6**]	**Tools**: also a system during the game play where you have a tools list, and it will help you just get your way through the level more easily, so there's like an ax that helps you get through the level, like break down doors and things like that. And there's a hose. Yeah, there's a water hose where you can put out the fires, and there's also a ladder, so you can move vertically without having to actually go through the building. You can get into a second-floor window or something like that. [**D4.6, D4.10**]
Graphics: Very realistic	**Graphics**: Realistic art style	**Graphics:**	**Graphics:** The art style is very realistic-looking. It is in first-person, meaning you play it from the character's eyes, and it is very emotional

Table 3

Feedback Given After/During Pitches

Feedback from First Pitch (Day 2)	Feedback from Second Pitch (Day 4)
D2.1 Inst.: Steve's pitch was pretty concrete. Didn't you feel like you kind of understood? Even in like 15 seconds, we already knew what that game was.	*D4.1* Inst.: things I would add, well, you don't have slides for it says the mechanics, but this morality system, or this saving people system, the stress system, explain that a little bit better. What would happen? Maybe give an example of what the PTSD means, like what would happen to him. What are some symptoms? Maybe tomorrow research just really quick what could happen, you know, anxiety attacks, panic attacks. Yes? just say maybe give an example of it, because it seems like a pretty big deal, and then, we didn't come back to it until the end. There's no slide for it.
D2.2 Inst.: I looked down and you already were kind of done. So then you were all like then we can keep going, which is fine to fill up the time, but I want to say that as far as a pitch goes, really that first, what, that first thing you said that was just it's a fireman PTSD third person for the PC…that was a lot of information	*D4.2* Inst.: Also, the fighting fire aspect of it, you have all that stuff in there, analysis, maybe show me what that mode would look like. Could you maybe draw it tomorrow where you can show us sort of like is it like detective vision in Batman or whatever? Is it sort of like firefighter vision? You know, show what that would look like I guess, yeah.
D2.3 Stud.: How do you get stressed? (the team elaborates on backstory and goal)	*D4.3* Inst.: Yeah, one of the things that always helps me understand a game is to see a sketch or something that shows the point of view as I'm playing the game, something like that.
D2.4 Stud.: Okay, if your fireman guy had such a big accident to cause PTSD, than why is he still being a fireman? (the team responds that it is part of his character trait to want redemption)	*D4.4* Inst.: I was wondering. At the end, you said something about dialogue choices, which I thought was cool. Depending on the choices, are dialogues choices with other characters?
D2.5 Stud.: At some of the levels, put some things in that were similar to the mission he failed at because that often triggers PTSD. So if you can like put some of that in there, than it would really give the player a feel for how your character thinks.	*D4.5* Inst.: PTSD is no, it's a pretty intense topic actually. I mean I admire that you guys chose something that's actually like a real thing. PTSD can happen in all sorts of things. It is. It is the real deal, so maybe find out tell me more about that system and this sort of morality, the stress system. Explain. There should be a slide for the stress system.
D2.6 Inst.: A flashback might be good	*D4.6* Inst.: The other thing is like what tools do you use as a firefighter?
	D4.7 Inst.: So, destructible environment is kind of like your *Red Faction* or something like that. I can see it catching on fire and it falling down. That would be fun.
	D4.8 Inst.: Firefighting is a team thing. One guys doesn't just run in… and be like, "I got this one." Okay, so will there be NPCs or could there be a chance for multiplayer or co-op or anything, or is it just single-player only? (respond about never discussing, but emphasize that he is alone and trapped from the others)
	D4.9 Inst.: You didn't talk about why they're burned, so they look like a cyborg. You know? And so, what I might do is You might want to say they have the scars of this fire and that stuff. That's I mean we all get it. I get it because I've seen it before, but if I didn't know, I might think it was like some futuristic like bwer, (response: Well, I wonder if we if we reveal it to audience why he has the burns or scars)
	D4.10 Inst.: So, I mean you're just pitching the game idea to me like I had millions of dollars, and I'm going, "Okay, that's really interesting." I know I think there haven't been a lot of firefighting games and stuff, but I might talk about just the water mechanics of this stuff. How is that going to work? I mean you said realistic, but is it like spraying like is it like *Super Mario* sunshine with fire, kind of, or is it more like shh like ? Just put a few more details in there to explain some things, I think, and that'll be good.
	D4.11 Inst.: Yeah. No, this is great though. I think you guys did a really professional job. I like the slides, the theme.