

Usability Testing and Analysis

The Cuatro

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October 24, 2014

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Executive Summary

The purpose of this document is to record and analyze the findings of individual playtests of *Newts Light*. During each playtest, the evaluators will record specific metrics, emotions, comments, and any issues experienced by the test subjects verbatim. These testing sessions will be used to help the developers determine player comprehension and understanding of the mechanics and context of *Newts Light*. Using the test aloud method, the evaluators will use these individual tests to determine areas within the design of *Newts Light* that need to be improved, removed, or otherwise altered to increase accessibility, playability, usability, and overall fun within the game.

The results we collected show that while the overall concept of the game is interesting to players, the gameplay can be very frustrating. The lack of information provided to players about how to play the game leads them to feel lost and does not allow them to fully enjoy the game. Furthermore, the difficulty curve of the game is erratic which causes players to become discouraged early on in the game; thus resulting in mounting frustration as the game progresses, which resulted in the majority of our testers quitting before completing the game.

Methodology

All tests were conducted utilizing think aloud testing with the tester being unprompted and uncorrected. After the initial splash screens were presented to the player, and before they began playing the game, evaluators asked the test subject four impression questions. After the testing was completed the evaluators questioned the test subjects with nine exploratory questions. Each of the impression and exploratory questions are standardized and asked to every test subject. These questions were created to be open ended and not meant to lead the player to one bias or another in an attempt to collect valuable behavioral and attitudinal data.

A total of five different playtest sessions were performed by five different test subjects who identified as either casual or non-hard-core gamers. Tests were performed on a PC, with keyboard and mouse, in a comfortable setting (either the observer's or the tester's home). Each player's age, gender, gaming experience, and player type was recorded prior to the start of each test session. Tests had three possible ending conditions: the tester completed the game in its entirety (all 4 levels) or the tester ended the playtest out of frustration or due to a game breaking bug. The metrics that were collected during the test sessions included: level number, puzzle number, time taken to complete each level, number of moves taken to complete the level, and any other notes that are relevant to the gameplay. If a level was not completed, the time and moves taken to get to the stopping point were recorded. The number of moves taken to complete a level is defined as how many times a player must move a game object (anytime a player interacts with a game object) and how many times a switch is flipped.

Levels were broken down by puzzle and each puzzle was determined by whether the player had to manipulate game objects to proceed out of the screen. Most levels were linear and should therefore align accurately to the puzzle number as presented within this document. The only exception is in the first level during puzzle two which provides the player with a choice to go up or down. The decision can either add two puzzles to the level or reduce the amount of puzzles required by two.

Raw Data Collection

Integrated Test Subjects Demographics

Tester Information				
Tester ID	Age	Gender	Gaming Experience	Player Type
Tester B1	51	M	None	Non-Gamer
Tester B2	31	F	Mobile, Console	Casual
Tester D1	29	F	Mobile, Console	Casual
Tester M1	29	F	PC, Mobile, Console, Board, Social	Casual
Tester P1	28	F	PC, Mobile, Console	Casual

Impression Questions

Question 1	What did you think the gameplay would consist of before starting the game based off your initial impression of the menu screen?
Tester B1	World development, planet development, history.
Tester B2	It's going to have something to do with this guy's light, his rainbow can of light. It's going to be old fashioned, back in the day.
Tester D1	Finding things, like a puzzle games where you have to find objects because the main menu buttons look like they could be maps
Tester M1	I thought it was going to be like a color and paint kind of game. It looked like he was holding a can up next to his (gestures to her face) and there's like the rainbow coming out from his hand and ummm.
Tester P1	Science! Something to do with light. Possibly a puzzle game?

Question 2	From the opening screen and main menu, what do you think this game is about?
Tester B1	As human race evolves, history progresses as our culture evolves.
Tester B2	Go back in time and work on his inventions.
Tester D1	I thought it would be about people back in history, when they all looked like that (points to character on main menu). And something to do with light and possibly rainbows.
Tester M1	I didn't think there was going to be a story at all. (What about context wise?) I don't know they were showing, what's his name, Benjamin Franklin I think? (Newton.) Newton? I don't know (laughing) they look the same; they all look the same from back then. (So you said originally that you thought it was going to be a painting game. So when you saw him and you saw the name Newts Light did it even click to you that it was going to be about light and prisms and stuff like that reflections, refractions?) No, I actually didn't look at the title. (You didn't look at the name of the game?) No. It didn't grab my attention. (Okay.) All I saw was "Start" "Levels". (Even at the very beginning where it said the name and the planet came across the sun and exploded?) No I thought that was like a loading screen or a studio name. I didn't pay attention to that.

Tester P1	Something historical about Newton.
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Question 3	Based on the opening menus, what do you picture the player avatar looks like?
Tester B1	I would assume it's going to be someone dressed in that era.
Tester B2	Like Sir Isaac Newton.
Tester D1	Like the guy in the main menu.
Tester M1	Like a little Mozart person, whatever he is, Newton obviously. (So did the avatar you played with match up to the avatar in your head?) No, I was expecting like a, the wig and everything kind of character. (So then was that a problem for you?) Yeah, it kind of didn't make any sense about why, on the screen title and stuff like that. And why he was dressed like a soldier when he was playing with lights. (Was there anything else about the avatar that you liked or didn't like?) He looked like he was holding a kind of a rifle or a gun or a weapon or something but then there was no use for it. (So then because it looked like he was holding a weapon you figured you should have been allowed to use one or do something?) Yes.
Tester P1	A stereotypical old guy with white hair.

Question 4	Based upon initial impressions of the opening screen, what other games game to mind?
Tester B1	None.
Tester B2	Yoshi because of the rainbow.
Tester D1	It doesn't really remind me of any games.
Tester M1	I don't know. I don't like playing games for the most part cause I am very picky. They have to look cool not cheesy like that. (So the overall quality basically set you off? It didn't remind you of any other thing?) No. (It didn't even remind you of other games that have set you off of have been off putting?) No, because when I try out a game it has to grab my attention. Everything has to look, or be appealing to me.
Tester P1	None that I can think of.

Data Collection

Level 1					
Puzzle #	Tester ID	Did Tester Complete? (Y/N)	Time Played	Moves Made	Notes
Puzzle 1	Tester B1	N	0:05:10	10	"I don't know what a prism is." "I don't know what that thing is." - (clicking on the avatar) (clicked on switches and instructions many times) (pressed directional buttons to no effect)
	Tester B2	N	0:05:04	13	"This is stupid, I'm usually good at this sh*t." (amused laughing)
	Tester D1	Y	0:07:14	18	"So... what is the point of this?" (First few minutes were spent clicking around the screen.) (Player got to top of platform with switch, missed instructional text about how to activate switch.) "Oh no, I missed it, what did it say? Well I'm screwed now." (Player clicked on switch several times and restarted the level.) (Upon restart, player used 4 moves and took 45 seconds.)
	Tester M1	Y	0:06:05	45	"I can't get up there." "I can't do this" "I don't know how to get the red one to light up, it's hurting my brain." (frustrated laughing) "I keep over jumping." "Sometimes it seems like the character is lagging out but I am not sure." "What am I supposed to do?" (annoyed sigh) "Oh my gosh."
	Tester P1	Y	0:07:53	13	"I like the idea of visual cues, but these are a bit confusing. I wish I could use the arrow keys."
Puzzle 2	Tester B1	N			DID NOT PLAY
	Tester B2	N			DID NOT PLAY
	Tester D1	Y	0:01:42	6	(Player flipped switch several times and stops and watches the tutorial boxes) "I'm trying to figure this out." "These pictures are confusing, why is he on a skateboard? Do I need a skateboard?"
	Tester M1	Y	0:00:20	6	"I am just looking"
	Tester P1	N	0:01:42	7	GAME BROKE. TESTER COULD NOT COMPLETE. RATHER THAN FORCING THE TESTER TO PLAY 1-1 AGAIN, WE MOVED ON TO LEVEL 2.
Puzzle 3 (If tester took bottom	Tester B1	N			DID NOT PLAY
	Tester B2	N			DID NOT PLAY

path)	Tester D1	Y	0:00:35	3	"The words should really stay on the screen a lot longer."
	Tester M1	Y	0:01:25	8	"There is no light." (Player attempted to activate switch) "I am trying to get to the platform." (Player tries switch again) "Now it works. For no reason."
	Tester P1	N			DID NOT PLAY
Puzzle 4 (If tester took bottom path)	Tester B1	N			DID NOT PLAY
	Tester B2	N			DID NOT PLAY
	Tester D1	Y	0:00:55	3	(Player pauses before walking past the black vertical lines, then walks through them.)"Why are these black if you can walk through them?"
	Tester M1	Y	0:01:56	2	"Those black lines are making me think I can't go there so I was hesitating."
	Tester P1	N			DID NOT PLAY
Puzzle 5	Tester B1	N			DID NOT PLAY
	Tester B2	N			DID NOT PLAY
	Tester D1	Y	0:02:23	8	N/A
	Tester M1	Y	0:05:00		"I went through the green block for some reason." "I'm trying to get the right lighting to the blocks I want." (Frustrated moan) "I don't know where to go" "I don't know where to put this" (Bug encountered - Prism became inactive after placing it near the switch on top platform temporarily) "Now it works all of a sudden" "Now I am cheating." (Sigh)
	Tester P1	N			DID NOT PLAY

Level 2					
Puzzle #	Tester ID	Did Tester Complete? (Y/N)	Time Played	Moves Made	Notes
Puzzle 1	Tester B1	N	0:02:08	9	"This guy has to do something."- (clicking on avatar) "Now it's gone."-(prism behind a wall)
	Tester B2	N	0:09:29	18	"This is stupid. That's annoying that I can't move the yellow one past where he's standing." "Okay, now I'm p*ssed."-(laughing, couldn't move blue prism when touching blue wall)

	Tester D1	Y	0:05:36	17	(Sees the puzzle for the first time)"I don't think I'm gonna like this one."(Player drags the red prism past the red wall and towards the yellow wall. Player drags prism into yellow wall and prism gets stuck. Player cannot get prism unstuck, so restarts the puzzle.) Second attempt - (trying to jump onto platform) "I don't understand what I am supposed to jump on"
	Tester M1	Y	0:14:07	71	"I have to combine the gems to make the bars go away now?" (You are combining them?) "Yes I had to combine them on the right side to make the bar go away, the bar on the left didn't go away but the one on the right did so now I am combining them." "I am assuming I have to jump up over the wall to get to the next level but I can't make the jump or I keep over jumping." (Player is attempting to jump from lower platform to middle platform) "I was hoping I could use the gems to jump off of too." "Do I really have to beat this game? I'm very bad at this." (repeatedly attempting to perform the same jump) "I do have to go up there right?" (Yes. - affirmed player because of mounting frustration) [BUG ENCOUNTERED] "Where are you going?!" (C floats out of screen) "Gosh dang it." "Oh my gosh." "I feel like the spacebar doesn't work sometime."
	Tester P1	Y	0:07:20		"I think it's weird that the light source in this level is indistinguishable".
Puzzle 2	Tester B1	N			DID NOT PLAY
	Tester B2	N			DID NOT PLAY
	Tester D1	Y	0:01:35	12	N/A
	Tester M1	Y	0:01:19	16	Tester did not talk, only mumbled to self.
	Tester P1	Y	0:02:45	14	MOVED ON AFTER COMPLETION TO ENSURE THAT ALL LEVELS COULD BE PLAYED
Puzzle 3	Tester B1	N			DID NOT PLAY
	Tester B2	N			DID NOT PLAY
	Tester D1	Y	0:03:03	14	(seeing the puzzle for the first time)"This looks intense." (Player flips the switch once then tries to flip it again and nothing happens)"What the fudge, I just used this switch. Why isn't it working

					now?"(Player attempts to flip the switch several more times, and then moves on.)
	Tester M1	N	0:00:13	3	"I'm done." (You're done?) "Yeah."
	Tester P1	N			DID NOT PLAY
Puzzle 4	Tester B1	N			DID NOT PLAY
	Tester B2	N			DID NOT PLAY
	Tester D1	N	0:04:02	18	"These pictures move way to fast, I can't make any sense of them."(stares at the tutorial pictures for a while) "Triangle plus, is that an eyeball? Where is the eyeball here?" "I don't understand this one at all. There's no eyeball here. I can't do this." (player asks to move on to next level)
	Tester M1	N			DID NOT PLAY
	Tester P1	N			DID NOT PLAY
Puzzle 5	Tester B1	N			DID NOT PLAY
	Tester B2	N			DID NOT PLAY
	Tester D1	N			DID NOT PLAY
	Tester M1	N			DID NOT PLAY
	Tester P1	N			DID NOT PLAY

Level 3					
Puzzle #	Tester ID	Did Tester Complete? (Y/N)	Time Played	Moves Made	Notes
Puzzle 1	Tester B1	N	0:02:37	12	"Is that part of the game?"- (accidentally brought up message bar) "Well I don't know what else to do." (clicking on everything, testing movement of prisms) (hitting jump button a lot, found spacebar jump) (exploring buttons more)
	Tester B2	N	0:02:33	9	"I mean I feel like I'm being set up for failure here." "I like how he jumps and his legs come up. It's very accurate." "I do not believe the game, that these switches adjust the lasers." "Okay, I'm not even

					trying anymore."
	Tester D1	Y	0:04:09	33	(Player flips both switches many times.)"I have no idea how to do this one." (Player begins dragging blue prism around randomly while flipping switches, then activates blue prism and causes yellow prism to fall and drops blue one. Prisms get stuck together and game breaks. Player restarts puzzle.)
	Tester M1	N			DID NOT PLAY
	Tester P1	Y	0:06:04	36	"I don't know what these lasers do! If they're lasers why do they have an endpoint?"
Puzzle 2	Tester B1	N			DID NOT PLAY
	Tester B2	N			DID NOT PLAY
	Tester D1	N	0:03:21	8	"I don't like this one." "This is too hard, I can't do it." (Player quits out of frustration and moved on to level 4.)
	Tester M1	N			DID NOT PLAY
	Tester P1	N	0:06:24	8	PLAYER CHOSE TO STOP OUT OF FRUSTRATION. WE MOVED ON TO LEVEL 4.
Puzzle 3	Tester B1	N			DID NOT PLAY
	Tester B2	N			DID NOT PLAY
	Tester D1	N			DID NOT PLAY
	Tester M1	N			DID NOT PLAY
	Tester P1	N			DID NOT PLAY
Puzzle 4	Tester B1	N			DID NOT PLAY
	Tester B2	N			DID NOT PLAY
	Tester D1	N			DID NOT PLAY
	Tester M1	N			DID NOT PLAY
	Tester P1	N			DID NOT PLAY
Puzzle 5	Tester B1	N			DID NOT PLAY

	Tester B2	N			DID NOT PLAY
	Tester D1	N			DID NOT PLAY
	Tester M1	N			DID NOT PLAY
	Tester P1	N			DID NOT PLAY

Level 4					
Puzzle #	Tester ID	Did Tester Complete? (Y/N)	Time Played	Moves Made	Notes
Puzzle 1	Tester B1	N	0:07:11	15	"These are more like doors."- (hovering over the red barriers) "My biggest thing is knowing how to move this man other than up and down." "If he can move through these prisms or open these doors up." "Okay, so it did something to the prism."- (after placing it on gray block) "Now I can't get it back out."-(after moving red prism behind exit door)
	Tester B2	N	0:03:39	6	"What is going on?"- (after putting the green prism in the gray box) "I figured that out!"- (gray box changing the red prism) "I don't know where I'm supposed to go." "I feel like that box has something to do with it but I don't know what."
	Tester D1	Y	0:02:00	10	(Player looking at red prism under the light reflecting to the left side of the screen.)"Why won't this one turn around?" (Player begins randomly moving the prism around and finds out how to work the rotating device.)"Oh, I was wondering what this thing did."
	Tester M1	N			DID NOT PLAY
	Tester P1	Y	0:03:44	20	N/A
	Tester B1	N			
Puzzle 2	Tester B2	N			DID NOT PLAY
	Tester D1	N	0:02:54	12	"I'm bad at doing two things at once." (trying to jump on the green platform) "I don't want to do this anymore"
	Tester M1	N			DID NOT PLAY
	Tester	Y	0:01:34	12	N/A

	P1				
Puzzle 3	Tester B1	N			DID NOT PLAY
	Tester B2	N			DID NOT PLAY
	Tester D1	N			DID NOT PLAY
	Tester M1	N			DID NOT PLAY
	Tester P1	Y	0:01:36	11	"Why are these puzzles easier than the earlier puzzles?"
Puzzle 4	Tester B1	N			DID NOT PLAY
	Tester B2	N			DID NOT PLAY
	Tester D1	N			DID NOT PLAY
	Tester M1	N			DID NOT PLAY
	Tester P1	Y	0:01:18	5	N/A
Puzzle 5	Tester B1	N			DID NOT PLAY
	Tester B2	N			DID NOT PLAY
	Tester D1	N			DID NOT PLAY
	Tester M1	N			DID NOT PLAY
	Tester P1	Y	0:04:02	8	N/A
Puzzle 6	Tester B1	N			DID NOT PLAY
	Tester B2	N			DID NOT PLAY
	Tester D1	N			DID NOT PLAY
	Tester M1	N			DID NOT PLAY
	Tester P1	Y	0:01:20	4	N/A
Puzzle 7	Tester B1	N			DID NOT PLAY
	Tester	N			DID NOT PLAY

	B2				
	Tester D1	N			DID NOT PLAY
	Tester M1	N			DID NOT PLAY
	Tester P1	Y	0:00:15	1	N/A
Puzzle 8	Tester B1	N			DID NOT PLAY
	Tester B2	N			DID NOT PLAY
	Tester D1	N			DID NOT PLAY
	Tester M1	N			DID NOT PLAY
	Tester P1	N			GAME BROKE. COULD NOT COMPLETE. SEE GAME ISSUES FOR QA REPORT.

Integrated Exploratory Question

Question 1	What did you like about the game?
Tester B1	Very little.
Tester B2	I liked that it was puzzle-like and made me think.
Tester D1	I like how they used the different colors and lights, it's an interesting idea.
Tester M1	Nothing. (Honestly?) Yes. (You didn't like anything?) No.
Tester P1	I liked the idea of solving puzzles using crystals and light. It was pretty unique.

Question 2	What did you not like about the game?
Tester B1	Everything. I guess if I understood the controls, if I could move him, it would've been a lot better. That's what probably keeps me from playing with (son), remembering what does what on the controls.
Tester B2	The noise when you picked up the prisms. I couldn't figure out how to move the switches.
Tester D1	I didn't like the way the words and the pictures were supposed to tell you how to play, but they went away too fast. (What do you mean they went away?) Like they would show up and I wouldn't have time to look at them before they disappeared and some of them didn't show up again. Things were jumpy too. (Jumpy?) Yeah, like glitchy. Sometimes things would get stuck and you couldn't pick up the prisms.
Tester M1	All of it. I didn't like any of it. I guess to be specific I didn't like, I don't know, it felt like I couldn't control the character well. Or else I just suck.
Tester P1	Having to use WASD keys for movement. I think there should have been an option to use arrow keys. That would have made it easier for me.

Question 3	What can you tell me about your understanding of the story of the game?
Tester B1	So far I haven't gotten any more understanding of what the story is or what my objective is.

Tester B2	To do the puzzles to get the guy to where he's supposed to go but I don't know who the guy is or where he's going or what those boxes were.
Tester D1	I don't know, it has something to do with moving lights around to get out of places.
Tester M1	There was no story in my head.
Tester P1	As far as I know there was no story. It just seems as if you are a spaceman just trying to solve puzzles with no real objective.

Question 4	Tell me what you thought about the jumping controls of the game.
Tester B1	They seem to work okay if I could just figure out how to get them to move forward.
Tester B2	Jumping was good. I would've thought spacebar was jump.
Tester D1	I wish you could use the arrow keys too, cuz that would have made it easier for me to do some of the jumping stuff. They were too much. (What do you mean by too much?) They were erratic and spastic, like it jumped really far and it was hard to gauge how far to jump and move at the same time. It took me a really long time to figure it out; well I still never really got them down.
Tester M1	That was my main problem with it. The jumping. I felt like sometimes I wasn't going where I wanted it to. (Like was it a problem with timing or speed?) Sometimes I would press the space button and it didn't go, or over, sometimes I would go short distances, just go up and down, or sometimes shoot over the level.
Tester P1	The jumping itself was fine, but sometimes you could jump through blocks when other times you couldn't. The inconsistency was frustrating. Again, I think if I had the arrow keys for movement, I would've had an easier time plat-forming.

Question 5	How did the information provided by the game (in-game text, hints) help you understand how to play the game?
Tester B1	It didn't. Very little.
Tester B2	It didn't. I didn't know I could move the guy with the keyboard.
Tester D1	Well, I didn't read most of the things that popped up because they went away too fast. I was concentrating on my guy (player avatar) and I wasn't paying attention to the text so by the time I would see it would go away in like a second. The picture was kind of helpful a little, but they were kinda confusing too.
Tester M1	It helped me somewhat. Not very much, I had to figure out most of it. (You felt you had to figure it out mostly yourself?) I think so but I'm horrible with puzzle games so it took a long time.
Tester P1	I like the hints in the first level. Other than that I don't feel like they gave you very many hints or direction. They told you that the lasers do something, but they didn't tell you about the machine that switches the direction of the crystals.

Question 6	How did puzzle difficulty compare to previous puzzle games you've played?
Tester B1	Difficult.
Tester B2	It seemed to be pretty easy if I knew the guy moved. It was more difficult. I feel like there was a big jump from Level 1 to Level 2 in difficulty.
Tester D1	I don't really play too many puzzle games, but this one seemed hard because I didn't know what I had to do half the time. Like it never told me how things worked so I was really lost. And it got difficult really fast too, like the game didn't give you a chance to get used to the controls and stuff

	before you had to start doing more complicated things.
Tester M1	I guess this was harder just cause I felt lost.
Tester P1	[These puzzles were] fairly simple. They were easy to solve, but the movement mechanics prevented me from completing the puzzles.

Question 7	Tell me about your thoughts on moving the prisms around.
Tester B1	That was hard too. I couldn't figure out how to do anything specific. I figured out how to open one door but not another one.
Tester B2	What I told you, the one wouldn't move the way I wanted it to. It would've been easy had I been able to move them. I had one get stuck a little bit but other than that it was pretty good on this level (4).
Tester D1	I kinda liked the idea, but when you had to move the prisms while doing other things like moving around it was hard. (Can you give me an example?) Like the one puzzle with the lasers (level 3 puzzle 2) where you had to move the prisms and jump on the platforms at the same time, that was really hard. I never even got to the second platform.
Tester M1	Sometimes they would get stuck. (Anything else? Like how would they get stuck?) Sometimes they would move this way and another way then all of a sudden I can't move it. (And that was a problem?) Yeah cause it went that way before and then all of a sudden I can't move it there. (So you could move it to areas previously and then afterwards you couldn't move it back to the same area you felt like?) Mmmm hmmm.
Tester P1	If you grabbed them in the right spot, they moved fine. There were numerous instances in which it seemed as if they got stuck on absolutely nothing.



Question 8	What were your thoughts on the combination of plat-forming and cursor controls?
Tester B1	I have no idea. I didn't know much of it.
Tester B2	I have none because I didn't know how to use cursor (she meant keyboard) controls. If I was more coordinated I could probably do both. I think that most people that don't play games often, especially PC often, will think it's the directional arrows to move.
Tester D1	It was really hard for me because I don't play PC games that much and like I said before, it was really hard and frustrating when I had to do them both at the same time.
Tester M1	That was confusing. (Why?) Cause I'm already a horrible player so jumping and trying to control the gems to go on the platforms and turn them on and off was difficult for me along with the lack of jumping control. (You do it all the time in other games like World of Warcraft though. Why was it so much more difficult in this game rather than other games like World of Warcraft?) I guess I was also trying to find a sweet spot basically where the gem could go to activate the platform and turn it off and on. And sometimes it would change. (So it would move around like sometimes it felt like it was activating in some spots then in other spots?) Mmm Hmm. (Were you able to identify what was activating the platforms? Did you identify what was turning them on and off?) Moving the gems away from the light and moving their positions. (Did you see the reflections off the gems of the different colors that showed you where it would activate other colors?) Yes. They were very light but yes. (Okay, so difficult to see them?) At the very beginning and then I started noticing them. (But you didn't notice them at the beginning?) No.
Tester P1	I found it frustratingly difficult. I gave up on one puzzle [Puzzle 3-2].

Question 9	Were you able to discern between instructions and character commentary?
Tester B1	I don't think so.
Tester B2	No because there was none.
Tester D1	Not really, I didn't really even get a chance to read the text that popped up onscreen because it didn't stay on the screen for that long
Tester M1	I didn't know the character was talking, I thought they were all instructions. (What about the line that said "This is awesome"?) I didn't see that.
Tester P1	There were no distinguishing differences. It wasn't evident that it was actually the character speaking.

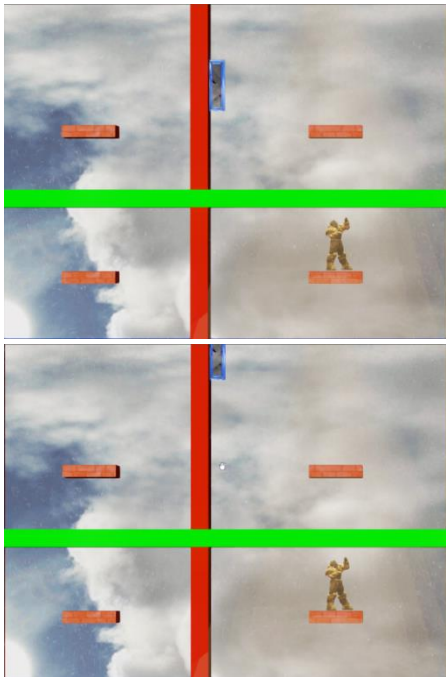
Integrated Directive Questions

Directive questions were not provided by the design team.

Issues

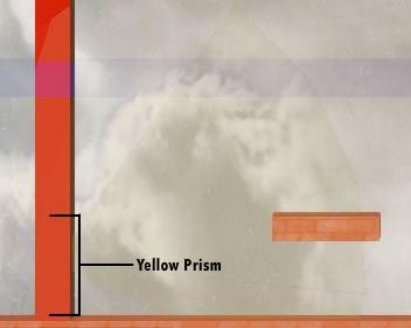
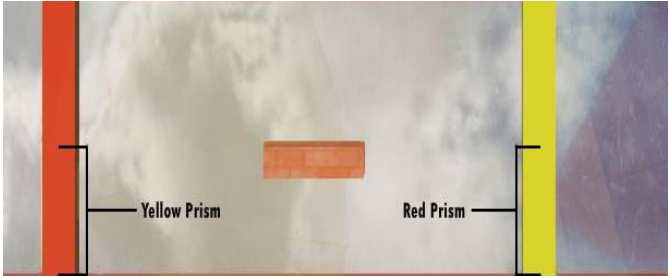
Issue	Prism stuck and color filter unresponsive	
Description	The prism can get stuck in between the invisible blue wall and the switch if dropped. The tester then tried to move the blue color filter to the left hand switch to see if the wall would push the prism out. This resulted in the blue prism becoming unmovable.	
Severity	Critical	
Level #	1	
Puzzle #	2	
QA or Gameplay Issue	QA	
Screenshot	 <p>After the prism has been dropped between the switch and the wall, the prism cannot be picked up again.</p>	 <p>After moving the blue color filter to this position, the player can no longer pick up the blue color filter.</p>

Reproducible	Yes
Reproduction or Resolution	Throw the first switch. When the gate lifts, place the blue color filter on the top ledge so that color filter catches the light and makes the wall invisible. Pick the prism up and drop it in between the invisible wall and the switch. The prism will get stuck. Finally move the blue color filter away and drop it next to the leftmost switch. Now, you are unable to pick up the prism as well as the blue color filter.
Found By	Tester P1
Witnessed By	Paul Korolenko

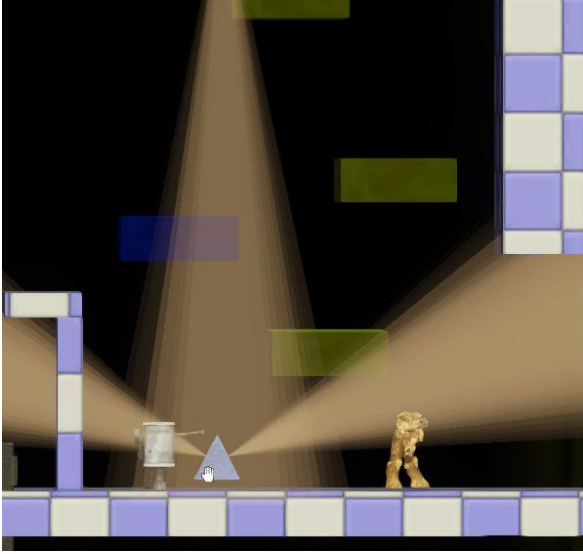
Issue	Color filters float out of the game play window	
Description	Players are able to cause color filters to float off of screen potentially preventing them from progressing through the level.	
Severity	Critical	
Level #	2	
Puzzle #	1	
QA or Gameplay Issue	QA	
Screenshot		<p>Up, Up</p> <p>& Away</p>

Reproducible	Yes
Reproduction or Resolution	Move any color filter to contact the red or yellow vertical walls above the green bar line while the red and yellow walls are active. Upon contact with the vertical walls above the green line the color filter will float upward and out of the gameplay area potentially preventing the player from progressing.
Found By	Tester M1
Witnessed By	Matthew Mathis

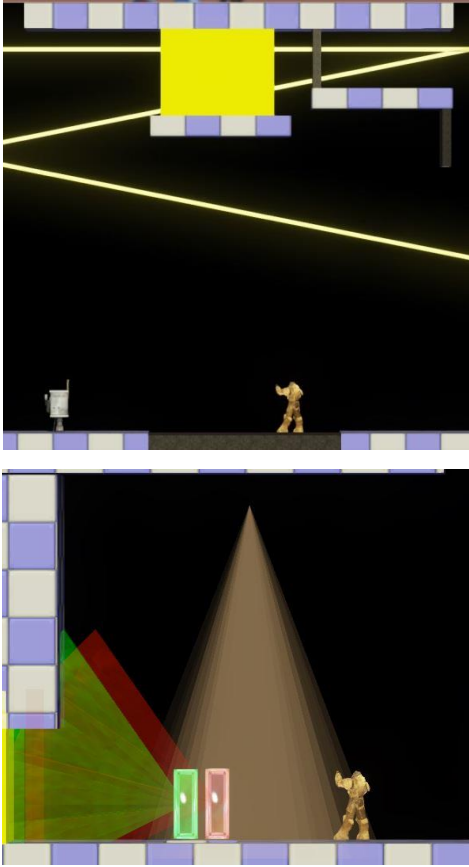
Issue	Color filter stuck in wall
Description	The red color filter can be dragged into the yellow wall located on the right hand side of the screen and the yellow color filter can be dragged into the red wall on the right hand side of the screen. This causes both color filters to become stuck in the wall and the player is unable to pick them up and move them, causing the player to be unable to advance to the next level.
Severity	Critical
Level #	2
Puzzle #	2
QA or Gameplay Issue	QA

<p>Screenshot</p>	 <p>The yellow color filter is stuck behind this wall and cannot be moved.</p>  <p>Both the yellow and the red color filters are stuck behind the walls.</p>
<p>Reproducible</p>	<p>Yes</p>
<p>Reproduction or Resolution</p>	<p>Drag the yellow color filter to the red wall and try to drag it through the wall, the color filter will become invisible behind the wall. The same steps can be followed to get the red color filter stuck in the yellow wall.</p>
<p>Found By</p>	<p>Tester D1</p>
<p>Witnessed By</p>	<p>Danielle Fimbres</p>


<p>Issue</p>	<p>Unintended deactivation of game objects</p>
<p>Description</p>	<p>The tri-prism can be used to turn the blue gate invisible without having to manipulate the rest of the puzzle.</p>
<p>Severity</p>	<p>Critical</p>
<p>Level #</p>	<p>4</p>
<p>Puzzle #</p>	<p>4</p>
<p>QA or Gameplay Issue</p>	<p>QA</p>


Screenshot	
Reproducible	Yes
Reproduction or Resolution	Upon entering the puzzle screen, move the tri-prism under the light on the right side. Flip the switch and the gate will disappear. This only occurs if the blue color filter hasn't been touched.
Found By	Tester P1
Witnessed By	Paul Korolenko

Issue	Yellow color filter disappearance
Description	The tester is able to move the yellow color filter into the translucent yellow box after the black gate lowers. If the player drops the color filter while it's positioned behind the box, the color filter is lost, making it impossible to finish.
Severity	Critical
Level #	4
Puzzle #	3
QA or Gameplay Issue	QA


<p>Screenshot</p>		<p>The yellow color filter is stuck behind the yellow block.</p> <p>The player is unable to complete the level.</p>
<p>Reproducible</p>	<p>Yes</p>	
<p>Reproduction or Resolution</p>	<p>After reaching the final puzzle, travel back to grab the yellow color filter. The color filter can slip through the tiny gap between the yellow box and the cage in which that the color filter sat. After the color filter is behind the yellow box, drop the color filter.</p>	
<p>Found By</p>	<p>Tester P1</p>	
<p>Witnessed By</p>	<p>Paul Korolenko</p>	

<p>Issue</p>	<p>Inconsistency of input commands</p>
<p>Description</p>	<p>No constant indication of what buttons are needed to interact with objects.</p>
<p>Severity</p>	<p>Medium</p>
<p>Level #</p>	<p>All</p>
<p>Puzzle #</p>	<p>All</p>
<p>QA or Gameplay Issue</p>	<p>Gameplay</p>


<p>Screenshot</p>	 <p>No text prompt explaining how to use the switch despite the player being close.</p>
<p>Reproducible</p>	<p>Yes</p>
<p>Reproduction or Resolution</p>	<p>Make switch interaction text consistent throughout game.</p>
<p>Found By</p>	<p>Testers B1 and B2</p>
<p>Witnessed By</p>	<p>Brandon Scott</p>


<p>Issue</p>	<p>Confusion of Interactive Objects</p>
<p>Description</p>	<p>No clear indication between items that can/can't manipulated with the mouse.</p>
<p>Severity</p>	<p>Medium</p>
<p>Level #</p>	<p>All</p>
<p>Puzzle #</p>	<p>All</p>
<p>QA or Gameplay Issue</p>	<p>Gameplay</p>
<p>Screenshot</p>	
<p>Reproducible</p>	<p>Yes</p>

Reproduction or Resolution	Have a standard cursor image that changes to the hand icon only when hovering over items that can be moved with the mouse.
Found By	Testers B1 and B2
Witnessed By	Brandon Scott

Issue	Lack of explanation of new game mechanics	
Description	The player is required to move the prism back to the previous screen in order to “charge” it on a device. This is the first time this device is presented in the game as well as the first time a player is required to move an object from one screen to another. There are tutorial pictures that are meant to explain how the player is supposed to do this, but the pictures are confusing. This leads to players getting frustrated because they do not know what they are supposed to do.	
Severity	Medium	
Level #	2	
Puzzle #	4	
QA or Gameplay Issue	Gameplay	
Screenshot		<p>The player must go to the next screen and bring an item back and place it on the button below the players current position</p> <p>In this screen, the player must pull the black prism back to the previous screen.</p>

	These are the four tutorial images that are meant to show the player that they need to utilize two different screens to complete this puzzle.
Reproducible	Yes
Reproduction or Resolution	Provide the player with clear instructions about the ability to move between screens and how to use the special prism and device using straightforward images or text.
Found By	Tester D1
Witnessed By	Danielle Fimbres

Issue	Items cancel each other out
Description	When two prisms of differing types but same colors are placed in the same light source they cancel each other out.
Severity	Medium
Level #	All
Puzzle #	All
QA or Gameplay Issue	QA
Screenshot	 <p>The screenshot shows a dark environment with a bright light source at the top. A blue prism is positioned on a platform, and a yellow prism is positioned below it. The light source is casting a beam of light that passes through the prisms, illustrating the issue where items cancel each other out.</p>

	
Reproducible	Yes
Reproduction or Resolution	Take a square prism and a diamond prism and attempt to overlap them to activate the object of your choice that is the same color as the square prism. Upon placing the diamond prism or square prism to overlap the object being activated the object will then deactivate resulting in one of the prisms requiring removal for the object to re-activate.
Found By	Tester M1
Witnessed By	Matthew Mathis

Analyses of Collected Metrics

Level 1 Analysis

The testers collectively took more time on puzzle one than the others. Additionally, there were testers that did not make it past the first puzzle. A commonality among all of the testers seems to be an inability to properly jump as well as missing the instructions on how to toggle the switch.

Level 1				
Puzzle #	# of Testers Completed	# of Testers Failed	Avg. Time Spent	Avg. # of Moves Made
Puzzle 1-1	3	2	0:06:17	19.80
Puzzle 1-2	2	3	0:01:15	6.33
Puzzle 1-3	2	3	0:01:00	5.50
Puzzle 1-4	2	3	0:01:26	2.50
Puzzle 1-5	2	3	0:03:41	8.00

Level 2 Analysis

Puzzles 2-1 and 2-2 proved to be difficult, but not impossible for most testers. The biggest issue was moving the color filters while simultaneously jumping. In puzzle 2-3, two testers opted out (M1 and P1). One tester (M1) quit at a very early stage in puzzle 2-3, this could be caused by mounting frustration from previous puzzles. The tester that did succeed into 2-4 (D1) did not know that color filters could be moved across screens, thus causing the tester to move on to the next level out of confusion.

Level 2				
Puzzle #	# of Testers Completed	# of Testers Failed	Avg. Time Spent	Avg. # of Moves Made
Puzzle 2-1	3	2	0:07:44	28.75
Puzzle 2-2	3	2	0:01:53	14.00
Puzzle 2-3	1	4	0:01:38	8.50
Puzzle 2-4	0	4	0:04:02	18.00
Puzzle 2-5	0	5	N/A	N/A

Level 3 Analysis

Testers had the least amount of success in this level. We found that testers were unaware that they had to pick up the color filters in order for the lasers to interact with them. This accounts for the high level of moves and failure rates. Upon reaching puzzle 3-2, testers D1 and P1 were unable to complete the puzzle and quit out of frustration. Both testers stated their reason for quitting was that the coordination required by the puzzle was too difficult.

Level 3				
Puzzle #	# of Testers Completed	# of Testers Failed	Avg. Time Spent	Avg. # of Moves Made
Puzzle 3-1	2	3	0:03:51	22.50
Puzzle 3-2	0	5	0:04:52	8.00
Puzzle 3-3	0	5	N/A	N/A
Puzzle 3-4	0	5	N/A	N/A
Puzzle 3-5	0	5	N/A	N/A

Level 4 Analysis

In puzzle 4-1 only two testers succeeded (D1 and P1). The amount of time spent in this puzzle is attributed to the lack of instructions provided about the rotating mechanic. Testers spent most of their time trying conventional methods to proceed. In puzzle 4-2, one tester (D1) failed due to timing the moving platform section. The other tester (P1) noted that these puzzles were easier than many of the previous puzzles.

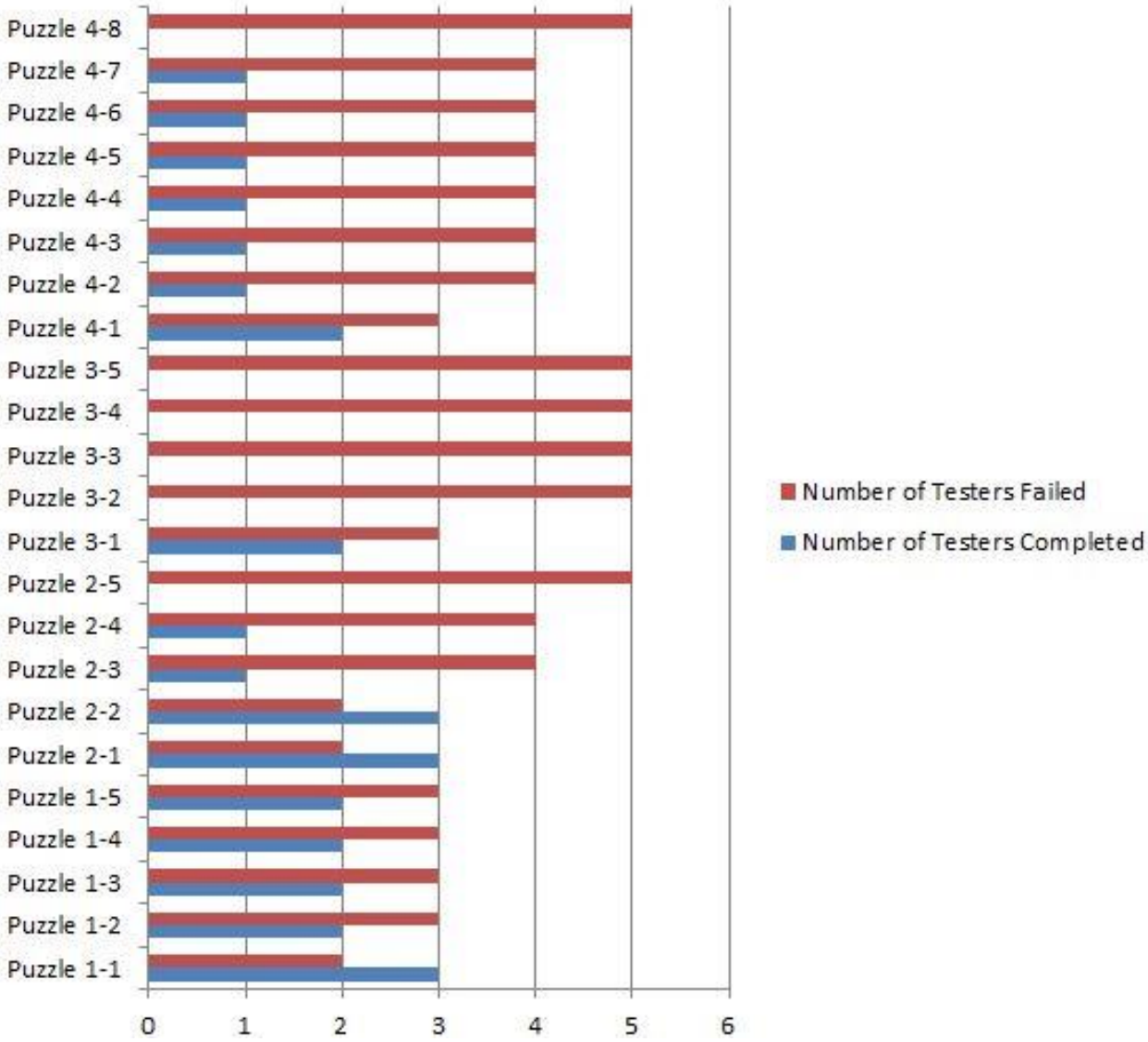
Level 4				
Puzzle #	# of Testers Completed	# of Testers Failed	Avg. Time Spent	Avg. # of Moves Made
Puzzle 4-1	2	3	0:04:08	12.75
Puzzle 4-2	1	4	0:02:14	12.00
Puzzle 4-3	1	4	0:01:36	11.00
Puzzle 4-4	1	4	0:01:18	5.00
Puzzle 4-5	1	4	0:04:02	8.00
Puzzle 4-6	1	4	0:01:20	4.00
Puzzle 4-7	1	4	0:00:15	1.00
Puzzle 4-8	0	5	N/A	N/A

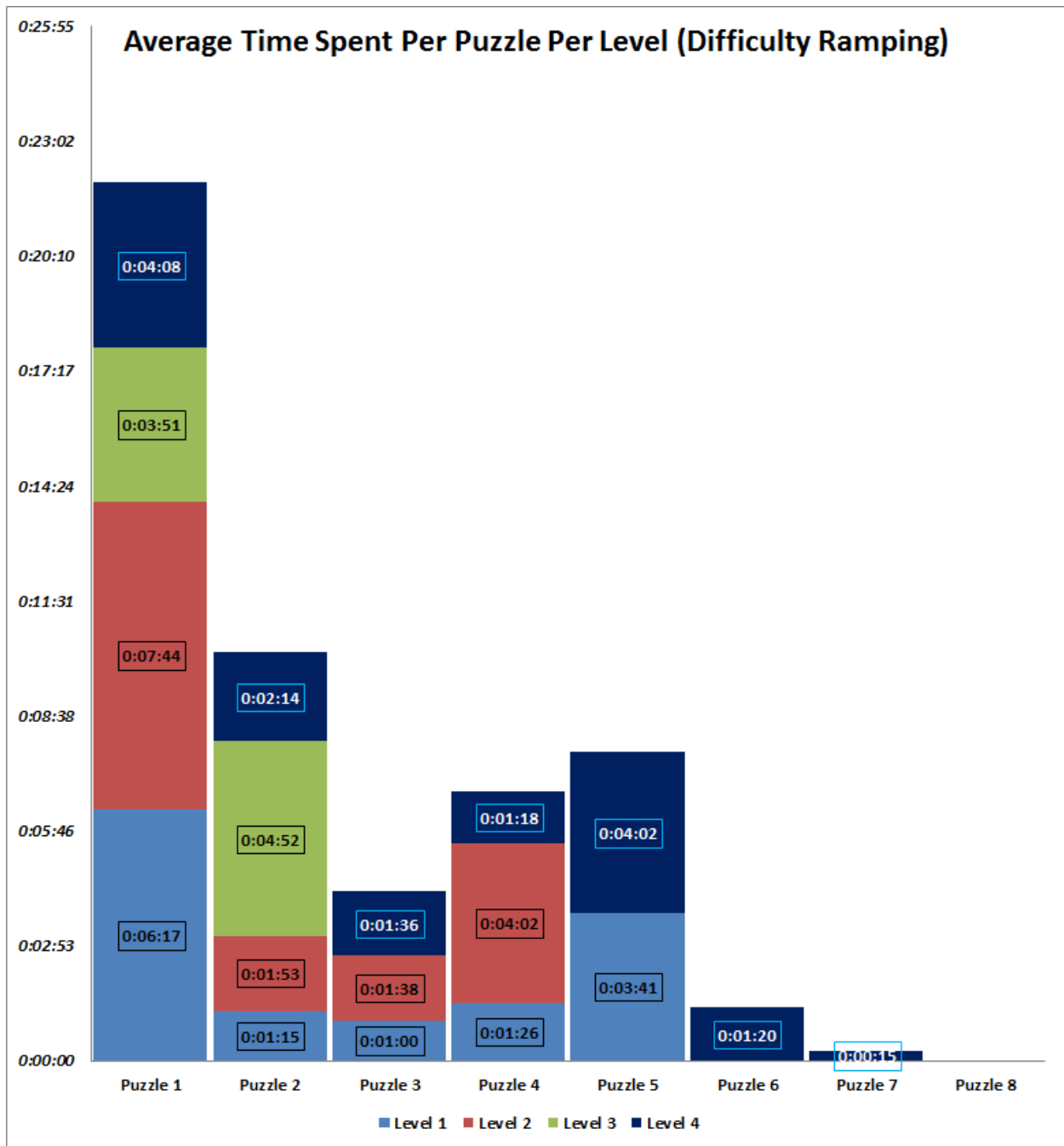
Overall Analysis

Our intent was to try to let the testers play the game for an hour. However, as the table below displays, many of the sessions fell far short of this mark. This may be due to the high level of frustration caused by the lack of instructions when new mechanics were introduced within the game.

Game Statistics Per Tester (Totals)				
Tester ID	Player Type	Puzzles Completed (Out of 23)	Time Played	Moves Made
Tester B1	Non-Gamer	0	0:17:06	46
Tester B2	Casual	0	0:20:45	46
Tester D1	Casual	11	0:39:29	162
Tester M1	Casual	7	0:30:25	151
Tester P1	Casual	9	0:45:57	139

Tester Success Rate Per Puzzle





Difficulty Ramping

Difficulty ramping is a very important aspect to any game but it is of critical importance in puzzle games. Typically the difficulty of puzzles in a game slowly increases as play continues. This is not the case in regards to *Newts Light*. The chart above labeled Average Time Spent per Puzzle per Level shows pretty comprehensively that the difficulty ramping in *Newts Light* does not start off easy and increase in difficulty further on down the line like it should. In fact, it seems to be quite the opposite. The first puzzle in almost every level takes more time to complete than subsequent puzzles do. This is likely because of the introduction of new aspects in each level but the difficulty of each new task is far above what was previously required and is not built upon iteratively. Additionally players are often not introduced to new methods of handling the game objects (such as holding a

prism with the mouse and moving it at the same time as jumping your character to reach a higher level platform) and often default back to what they know resulting in confusion, irritation, and displeasure. In almost every case in which the average time to complete a puzzle exceeded 2 minutes a new requirement was implemented and not clearly introduced, forcing players to figure out how to use the object or solve the puzzle the hard way.

Additional Notes

This section covers problems that were noted repeatedly by the play testers throughout play testing sessions.

Level 1

Puzzle 4:

The black bars that represent the rails for the elevator in this section are confusing to players since previously; black bars represented an impenetrable wall. Two of the testers mentioned that they did not think they would be able to move through them.

Level 2

Puzzle 1:

The light sources in this puzzle are indistinguishable. The main light source that is used to activate color filters blends into the natural lighting of the level itself, making it difficult to see where the borders of the light source are. Also, the lighting that comes from the color filters is very faint which makes it difficult for players to see how far they reach.

Level 4

Puzzle 1

The introduction of the prism rotator in this puzzle confused players. Players are not given any information about how the rotator works or that it is even something that they can interact with.

Non-Specific

Three of the testers noted that they would have liked the option to use the arrow keys rather than being forced to use the WASD keys for movement.

When new items like black prisms, rotators, and prism tele-porters are introduced, the players are not given any information about them and are left to find out for themselves how they work. Again, the little information provided to the player is confusing.

Recommendations

Area of game least enjoyed

The biggest issue our testers had with the game was the lack of information provided to them. Every one of the testers, at one point, mentioned the lack of useful information concerning gameplay that is given to the player. When information was given to the player, it often confused the player and/or was of little help. During

several test sessions, testers quit out of frustration, not due to puzzle difficulty but because they did not know how to use some of the new mechanics.

Area of the game most enjoyed

Testers seemed to enjoy the overall concept of the game. The idea of having to solve puzzles by manipulating light in order to gain access to specific areas seemed to be the most interesting part of the game for most testers.

What would make the game better?

The biggest problem our testers had with the game was the feeling of not knowing what was going on in the game. The game would be better if the tutorial images provided clearer information about what the player should do and how to use certain game objects. Also, help documentation that could be accessed through the pause menu would allow players to see information regarding gameplay throughout the game. This documentation should include a control list, a list of in game items that the player can interact with, and the story behind *Newts Light* that includes the overall goal of the game.

The difficulty ramping in *Newts Light* is very inconsistent. The game would be more enjoyable if the difficulty of the puzzles steadily increased as the game progressed, rather than appearing to be randomly spread out.

Post Mortem

What went right?

The test plan we created for *Newts Light* was easy to follow and it was clear enough that each team member knew what metrics needed to be recorded. The data that we decided to collect in the test plan was very well thought out and provided us with very specific and helpful information.

What went wrong?

As a team we could have organized testing a little better to ensure everyone was testing the same way. Although we all had a clear understanding of the data that needed to be collected, we did not discuss the actual process of testing beyond data collection.

What would we do differently in the next test session?

Before the next test session, we would make sure to discuss the testing process and how everyone is expected to conduct each test. We would outline what kind of tools we would use to record the test sessions, such as audio and video recorders, as well as note how to deal with testers being stuck in certain situations. Developing a plan for dealing with an event when a player is stuck on a specific puzzle or is becoming increasingly frustrated by that puzzle would have helped us to know when to move on to the next level. This would ensure that the team would get the maximum information needed for each test without forcing the player to continue playing when they do not want to.

References Page

Newts Light Team. (2014). *Newts light (AV2)*. [Video Game].

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