

Researcher: Alright, so first of all, I'll introduce myself real quick. I'm Reinard Baertsoen and I mentioned earlier that I'm doing my master's degree at Buas in game technologies. For this research, I'm actually looking at how the head-up display would affect a person's mental state of flow. For that, I'm using the game Counter-Strike 2, as it is the game with a head-up display that is not too busy, however, it's useful.

What I'm doing is I'm dividing the participants into two groups. You, on this side, you are part of the group without the head-up display.

So later, once we start playing the game, or once you start playing the game, we will set up the game to make sure that the head-up display is disabled, and then from there on out, I can compare all that data. Do you have any questions so far?

Participant: No, no.

Researcher: Alright, perfect. Alright, well, first of all, I'll ask you some questions about who you are. Then later we'll set up a bit of a baseline. Then after this, we have the play session, and then lastly, we'll have a little bit of a review of what happened. Some data gathering, in a way.

Is that okay with you?

Participant: Yes.

Researcher: Alright. So, to start off, may I ask what your occupation is?

Participant: I'm a game programmer. Also at Buas. I'm in my year four now. So, that is what I do.

Researcher: So, of course you need your PC a lot because it's game development. Would you say that you using your PC this often and the making of games, does this affect the way that you play games yourself?

Participant: Yes, I do look more at how systems work in the game, and I'm trying to figure out, I was like trying to figure out how to use it to my advantage. So, I kind of like see, trying to see how stuff is made, and how stats work in the game, and how many

hits, how many damage it does, and then trying to figure out how many times you need to hit somebody to kill them, and stuff like that.

Researcher: So, you very much focus yourself on the numbers within games?

Participant: Yes, exactly, yeah.

Researcher: Okay, a little bit of a step back real quick. Yeah, I also want to ask, would you rate your attention span high or low, generally?

Participant: I mean, my attention span... It really depends if I'm winning, like on the winning side, my attention span will be longer than if I will be on the losing side.

Researcher: Yeah, when you're being challenged too much, in a way, you are feeling like you have a lower attention span. Would that make sense?

Participant: Yeah, I just wanted, yeah, if I'm like, yeah, we can never make this, I just want it to end, then I'll be...

Researcher: Okay, so at the point that you kind of lose all the sense of control?

Participant: Yes, or if there's a way, like orders, almost no action happening, for instance, I keep going to hold BS counter terrorist, but they keep pushing on A side.

I will also just fade away, and then I would just not pay attention anymore, I would just wait until it's done, I guess. Because you always need one person at the other side.

Researcher: Yeah, that makes a lot of sense. So, let's start talking about Counter-Strike 2 a bit, how long have you been playing the game? So, also Counter-Strike Global Offensive, because it's practically the same game.

Participant: So, according, I think it's like five years? Yeah, this is the thing, yeah, five years.

Researcher: And did you play a lot within those five years?

Participant: On and off, not continuous. I have been playing, like since CS2 came out, I've been playing like almost every day during the work week, like one or two games with a specific team, like every time with the same, almost the same people. It's way more fun than playing with random people.

Researcher: So, you play quite often, but the sessions are relatively short?

Participant: Yeah, only like two games, and then, yeah, something like that.

Researcher: I think about an hour and a half, if you count...

Participant: Like one game could be, one game is like, like it could be like an hour, so two hours per day, and sometimes one hour per day.

Researcher: Yeah, depending on how the game is going?

Participant: Exactly. And then in the weekend, I barely play.

Researcher: Okay. It's interesting that you mentioned playing with other people, you know, the same group, because you said that you don't like playing with strangers as, I guess it impacts your performance. When you play with these people, do you communicate with them through voice chat or text chat?

Participant: Through voice chat, yes, exactly.

Researcher: And do you then communicate about the game, or is it just some random stuff?

Participant: Sometimes people talk about random stuff, especially like when we just start a game or something like that. Or when there's a timeout. But during the game, we say where we saw the last time enemies. So we have like different calls for different maps, where we saw enemies, or also if we get killed where the enemy was and with what weapon we got killed, stuff like that. Because not everybody is looking at the kill log or the stuff in the top right, right? Because you have these small icons that show you what kind of weapon it is. But it's very interesting. It's very important to know if there's a sniper, like an AWP, right? Somewhere in a specific place. So if somebody tells that to the whole team, then the whole team gets that important information right in their headset.

Researcher: Yeah, very direct?

Participant: Yes.

Researcher: But when you communicate with these players about the game, do you feel like you're still full able to concentrate on the gameplay? Does it distract you in any way?

Participant: When I'm like the last one alive, it could be really frustrating or distracting if they say what I have to do or not have to do, stuff like that. If multiple people at the same time are saying it. Especially when somebody says like, I think he is there, but then I'm like, no, I want to hear if he's there or not. Not like I think, stuff like that could be very frustrating. Also if people are dead and then also saying the same things to the rest of the team that's still alive.

Like, oh, it's probably there. Like, yeah, you don't know that that person already moved on after they killed you, right? So the assumptions that are getting made is very distracting sometimes.

Researcher: So for you to find them helpful, the voice chat, the communications need to be clear. Am I correct in that assumption?

Participant: Yes. And also, if you're especially when you're one of the last ones and you really want to hear the footsteps, it doesn't really help if people are telling you stuff because you can just listen if they're getting close or they're like left or right of you.

And if people are talking, you cannot hear that distinguish that, you cannot distinguish that from the game.

Researcher: Yeah, no. I completely agree. So, because it's also about, you know, the clarity of the information coming to you is also important. You know, because people talking over each other and this and that, or something simply not being correct. You know, the head-up display is also a piece UI that displays information to you directly. Would you say that you're somebody that makes active use of it, or is it something that you almost don't really see anymore because you do have five years of experience in the game? You know, maybe you got used to not using it, for example.

Participant: I do use the mini map a lot to see, like, if somebody from your team sees an enemy, then you also see like a question mark pop up in the map also. Because you play competitive, so then you see that.

Yeah. And if like, I also really look at the how many damage I've done. So if I shoot at some shots at somebody in one round, then I really want to know, did I barely hit them or did I hit them really good, but they were like down to like 10 health or stuff like that. I want to know that, I want to see how many, how many hits it took to kill somebody. Yeah. Stuff like that.

Researcher: To be able to communicate that to your team afterwards?

Participant: Yeah, because then... in the game, you're like, I've probably hit this person a lot. So then you also communicated to your team members like I've dinged, dinged this enemy, for instance, so that the other person knows that, oh, if it just hit him once, then he would be dead.

So to confirm that, that you're actually dinging that person, you can see your assist that you made an assist. And your teammate is killing that other person. And also you can see it at the top. You can see how many damage you did to that person to confirm your assumption that you dinked somebody.

Researcher: Yeah, I mean, I suppose in a way, like all other tactical first-person shooters, then. And by the way, because you've been playing Counter Strike 2 for quite a while, right? What's something that has kept you playing, what do you particularly enjoy about the game?

Participant: I think the rush of owning other people. I think that's kind of it.

Researcher: Can you elaborate on that?

Participant: So, like, I started not even knowing the names of specific places and there's like this whole tactic part of it that you like work together and you have to like just trust other people on their, on the stuff they say to you. So it's like the whole working together, to win from other people and also sometimes you hear other the other team also type in chat and talk trash to you and stuff like that. And then if you win from them, then it's more satisfying because you know they're like other human beings on the other end on the other end. And they're like talking this trash to you or stuff like that. And then you win from them. That's really nice. Yeah.

Researcher: So it's on the way it's both the fact that you have grown so much within the game and, the fact that you are better than the people. So there's the growing and competitiveness?

Participant: Exactly. Yes.

Researcher: Is there anything that you dislike about it? About the game.

Participant: If there's like some questionable kills, like if an enemy team kills me through a box with a sniper and I'm like, how did you even know I was there? Stuff like that. And then the whole team is like, they're probably hacking and I'm like, I hope not.

So this whole discussion if the people that we play against are hacking or not, it's very irritating because I'm like, doesn't even matter. Like we lost. That's it. Right? So that's kind of discussions. If there's a, if the other person is hacking or not, like, I don't know, doesn't matter.

Researcher: So it's less about the fact that you got shot through that box, more about the fact that people keep on talking about it?

Participant: Yes. Sometimes it like if the if some shots that are like almost impossible. Yeah. And then the whole discussion about that and I'm like, who cares and then say

you can save a play through right can save it. And then like watching back and it just feels like just wasting our time to be honest. We had multiple times where you save the game, play it back and then spectating that specific player and just every shot he takes is like, could he have known that, and stuff like that. It just paranoids me. Everybody's then paranoid right? And it's not really fun at all to be paranoid about other players.

Researcher: But in the moment itself, it's something that you're not very annoyed with, for example, so take your play against the hacker or somebody is suspected of hacking?

Participant: I mean, I mean, I mean, that is really annoying. If it's very obvious, then it's like really annoying, right? I think you just, I don't know, it doesn't happen that often that I see very, very specific. That's because you have this whole thing where you have to buy premium and then, you know, the free accounts are like hacking mostly.

Researcher: And then if it were to be somebody that just gets very lucky, for example, do you then have the feeling of: I don't have control over it. Or do you just say: oh it just happens?

Participant: I'm more like: how is this even possible? Like, I'm just questioning like this. How did, how did he know like this is way too obvious? Sometimes it's like, how can, how can this be? I guess in some games, you can see like, where the bullet travels from and stuff like that. Like in War Thunder...

Researcher: Your mic is cutting off, could you repeat that?

Participant: In some games you can see how the bullet travelled and it hit you, and stuff like that. In War Thunder, you can see how it was shot, and then like X rating, and you can see where it came from. I'm not saying it should be implemented in this game though, because then you're losing a lot of secrecy, on where somebody shooting from. But yeah, you could also see it on the map, I guess, but I don't know.

Researcher: You don't constantly look at the map, right?

Participant: No, exactly.

Researcher: Right. Okay. Are there any other first-person shooters that you play, besides CS2?

Participant: Black Squad. This is free one on steam. I've played that a lot. Then it did start with different Call of Duty franchises. So, Black Ops 2, I played a lot, and Black Ops 3 also played a lot, then you had World War 2. They are all Call of Duty's. Let me think... Oh yeah, Crossfire. Wait, it's on my desktop. Yeah, it's another like cheap free game.

Researcher: Yeah, I mean whatever works and whatever is fun.

Participant: Yes.

Researcher: And are there any things you particularly like or dislike about these games, in comparison to Counter Strike 2 that is?

Participant: Um, I also played Rainbow Six Siege. Yeah, that game gets closer to Counter Strike. And what I like about like Tom Clancy games, like Rainbow Six Siege and also CS, is their aim to realism.

I feel like it's more realistic. Also, you don't see where the enemies are, stuff like that. Also, the aim is on the sound. So you have to listen where the enemy is. So if all these elements that adds, that you have to be more tactical about it, because they can also hear you, your footsteps.

Also, if you switch weapons, you can hear that. All this stuff makes it way more realistic than like Call of Duty, where it's just you just shoot and you hope you hit something. And yeah, you don't really play tactic in that sense.

Researcher: So you're very much a tactical first person shooter player, if I get that correct?

Participant: Yeah, exactly. Yes.



Researcher: Okay. All right. Perfect. Well, we've got a little bit of a base right now on who you are and, you know, what games you're playing, how you play. Oh, actually something I did miss out on, sorry. What is the context that you play games in? So where do you play? When do you play?

Participant: I play on like, I play in the evening in my room. It's when I play during the week. So around, yeah, so we, let's see, yeah, we start like around 10. And then we play until 12. And that's, that fits two games. And then, yeah.

Researcher: And you play it at your desk?

Participant: Yeah, I play it at my desk. Exactly.

Researcher: All right. And you mentioned earlier that you tend to play with others, mainly in the group that you're used to playing with, right?

Participant: Exactly. Yeah. I mainly play with the same people. Sometimes we swap out somebody. Sometimes it's, somebody's not there, but majority of the team is always the people, the same people. Yeah.

Researcher: Yeah. All right. That makes sense. Okay. So, let's repeat this part. So, we have, you know, some idea of who you are and how you play games and when you play, the context, whatever. And now we'll be moving up to the next part and we will be setting a bit of a baseline, because there's some things that this study really focuses on. And of course, we've got to set these baseline values for you, if that makes sense.

Participant: Yes.

Researcher: Right. Are there any questions so far? Maybe something you forgot to say earlier?

Participant: No, maybe we have to pause it if we actually have to play a game so I can restart my laptop because for some reason my frame's really bad.

Researcher: Yeah, that is not a problem.

Participant: But that's for later. Yeah.

Researcher: Okay. So, as a first baseline question, I do want to ask you how would you currently rate your mental effort, so the amount of attention slash concentration you are giving to this situation that you're in, in a way, right, to your actions?

Participant: Not very high. Probably the same as if I would play in the evening because it's like the end of the day. So not the smartest. I do play way better when we're doing it like spontaneously in the weekends. Stuff like that.

Researcher: So you're somebody that tends to play when you still fully awake then?

Participant: No, but I should. Yeah. I'm not doing that, but I should do that, to make it better play.

Researcher: I mean, if you have, you know, I won't judge on whether you have to or not, but I understand. So, as you know, this research will be played, I don't know if I told you yet, but this research will be played in a Counter Strike 2 death match game. And I do want to ask you, do you ever feel helpless when playing this gam-mode? And why?

Participant: Yeah, when I'm the last person and the bomb is like across the map, then I feel a bit helpless. Yeah. And if there's like the whole, the whole other team are like four people left or something and they're like trying to look for me. And then everybody in my team is like telling me where they are and stuff like that. That's, that feels pretty helpless.

Researcher: And what about in the game mode of death-match? So the free for all.

Participant: Is it like team deathmatch?

Researcher: It is free-for-all deathmatch, sorry. I should have elaborated that.

Participant: I don't know. I haven't played death-match in CS. To be honest, I did play free for all -in Call of Duty and it's more just for fun. I guess I don't really feel helpless in that situation, I would say.

Researcher: And, you know, so related to the death-match, but maybe also to other game modes. Would you... so let's take free for all games-modes, right. Would you say that actions that or have things that happened to you depend on yourself or do they depend more on your environment?

Participant: They do depend on me because other people can hear me. You hear my footsteps. So if I make sounds, then somebody will peek the corner and then shoot me. So it's really dependent. It's mostly dependent on me and also on other. It's dependent on sounds because everybody's just, you know, just, you know, just, you know, just listening if somebody hears somebody and then they want to have advantage of the surprise and then shoot.

Researcher: So for example, when you die within the game, most of the time you say, well, it's my fault really not, you know, somebody else's.

Participant: If somebody is checking like my back and that person just dies. Then that is not checked. And I did not know that the person died because they did not tell me that they died. And I'm in this stress situation right already like defending, and then person dies. And I didn't know that they died. They didn't say anything.

And then I get killed. Then I get angry at the person that is supposed to stay alive in that sense for my own team. And also not telling me that they died. Sometimes that happens. They die and there's like, oh, they don't say anything. I have to guess or smell that they died or have to check.

Researcher: So the communication is a very important part for you there, whether you feel like you're in control or not?

Participant: Yes, exactly.

Researcher: Yeah. Okay. That makes a lot of sense. And now lastly, for the baseline, we'll do, how do you say, the most awkward part of things because we will be looking into what your perceived time duration is. So how you subjectively perceive time. I will ask you to make sure that everything is on do not disturb. And that there's also no real way for you to tell time. So no clocks, and no looking at your phone, and such.

Participant: I will remove my watch from my wrist, so I cannot look at it. My phone, I will check if it's on silent. Yes. And I do have a second monitor. So I'm going to turn it off because I can also see time on that thing.

Let's just remove it. Hope it doesn't break my laptop.

Researcher: It should be fine.

Participant: Yeah, it should be fine. Yeah, there we go. Yeah, no, I'm good. Yeah, I don't see time. No clocks. Yeah, I'm good.

Researcher: All right. Perfect. So let me explain to you real quickly how we'll be testing this. I'll be playing a tone. I'll give you an example of what the tone is real quickly.

[Plays tone]

It's this one and this one, in Discord itself.

Participant: All right. Nice.

Researcher: Once the tone plays a time interval will happen and I'll play the tone again afterwards. And then once the second tone has played, you tell me how much time you believe has passed between those two tones. Does that make sense?

Participant: Yes.

Researcher: All right. So I'll of course mute myself because I don't want to influence you in any way. Of course, if you need to play around with something that is completely

fine because I can definitely understand that just looking around might feel a bit too awkward. Right.

Participant: So, so I then I just when the second tone is hit, then I just say a time?

Researcher: Yeah, so how much time I believe has passed exactly.

Participant: Okay.

Researcher: All right. I'll mute myself and I'll play the tone in just a bit. Okay?

Participant: Yeah.

Researcher: [Plays tone]

[Plays tone]

Participant: One minute.

Researcher: One minute. All right. Let me just type that down. So I do not forget. Here we go. So, now that we've done that, I'd say you can open up the game, because from here on out, there will be the gameplay session.

Participant: Yes. You can see my screen and everything right?

Researcher: For me it's currently black.

Participant: Oh, yeah, I think it doesn't like it, because I removed the second monitor.

Researcher: That is very possible. By the way again, if there's any questions, you can of course ask them if you have something that pops to mind and you want to share it. Please do go ahead.

Participant: Yes. I was, I do wonder if I had it right or not. Or if I how close I was to the time. But we'll do that the end?

Researcher: Yes, exactly. Because yeah. I wanted to just tell you that right now actually. So we've set that baseline for the perceived time duration will also be doing that while you're playing.

Participant: Yeah.

Researcher: All right. So as I mentioned, you're in a group without a head-up display, right? So we will have to set some things up. Are you familiar with the developer console?

Researcher: No, is it...

Researcher: That is not a problem. If you could go to your settings for me. Then underneath game. And then you should find the enable developer console. Yes. The button that you should press for that is the tilde, if I'm not mistaken.

Participant: Yeah. Here we go.

Researcher: All right. Perfect. So that's then done. Can you go to your settings again for me? There's just a few more things to check. Could you go and turn on your fullscreen mode? If I'm not mistaken, that should be somewhere under video.

Participant: Fullscreen windowed. Is it also fine?

Researcher: As long as your task-bar doesn't pop up, or you don't get any...

Participant: No, I don't have taskbar. I will still put it at fullscreen. Just to be sure.

Researcher: And then if you could open the developer console, so with the tilde, and I'll send you two pieces of code that you can put in there.

So just control V in there and enter. This is the first one. That one will turn off your head-up display. And this second one will mute all the lobby noises to make sure that you don't get distracted by other players.

Participant: Yes. I was wondering, like, what if they're going to fight me or something?

Researcher: Exactly.

Participant: How do I know if it works because it doesn't return anything? It should work.

Researcher: It should work. I've tested it myself. So that should not be a problem. So, okay. That is all set up. If you can now go and press play, the deathmatch, indeed. Can you close your party on the left-hand side? And you can press go.

Participant: I'll just get this too.

Researcher: So this one will just be a warm-up to make sure that you're used to playing the game again. And then afterwards the actual gameplay session will happen. So once the warm-up is done, don't leave the match because it will just restart. And then from there, I'll tell you again that we'll be doing the time perception test. Okay?

Participant: All right. Yes.

Researcher: I'll just mute myself for now. I'll just see what happens.

Participant: Just keep playing. And then if I hear the note, or if I hear the quack, then I... And if I hear the second one, then I'll say the time.

Researcher: Yes, exactly. Perfect.

Participant: Okay. I'll just keep playing.

Researcher: Okay. I'll mute myself for a bit. And I'd say have fun and good luck.

Participant: Yes. Thank you. Okay.

Researcher: I do notice that your frames...

Participant: Oh, shit.

Researcher: Sorry if I jump-scared you there.

Participant: Oh, no. Oh, no.

Researcher: I did notice that your frame rate is quite low. Are you used to playing with these low frames?

Participant: No.

Researcher: Oh, okay. Then we should...

Participant: That's why I said restart again.

Researcher: Yeah. Okay. No worries. I'll pause the recording and then we'll set this up again. Okay?



Participant: Yeah. I'll restart.

Researcher: [Pauses recording]

[Resumes recording]

Participant: Is there certain stuff that I say? Or like... Or, I feel or something?

Researcher: I'd say just play like you normally play.

Participant: Okay.

Researcher: This is to represent a normal game play session. So, if you normally talk in game, go ahead.

Participant: Yes.

Researcher: don't know if you're aware, but if you're [Unintelligible].

[Explains that participant can open up the shop menu and press f3 to turn off random weapons]

Participant: Yeah, I did try that, but... Oh, there you go. Okay.

Uhm, P90. Okay, that's better.

Yes. Okay.

Researcher: Okay, that was the warm-up. You can stay in the lobby, it should restart by itself.

Participant: Yes.

Researcher: And again, I'll be playing the tone, while you're playing, and then play it again. And you just say the time, alright?

Participant: Yes.

Researcher: All right.

[Plays tone]

[Plays tone]

Participant: Uh, half a minute, 30 seconds.

Researcher: Okay. Alright, that was the game. How do you believe it went?

Participant: Yeah, that was the game. Yes.

Researcher: Would you say you did good, you know, in comparison to how you normally play? Or was it...

Participant: Um... It's hard to say. I think it was okay. Yeah, it's not the best, but it was okay.

Researcher: We all have those days, right?

Participant: Yes.

Researcher: You're allowed to leave the lobby.

Participant: Leave, yes.

Researcher: There you go. Okay, so you've played, you know, seen how you play and also... we did the time duration test, which was the main important thing at that moment.

Participant: Yeah, I said 30 seconds. Yeah.

Researcher: Exactly. Once the interview is done. I'll tell you all about it. Okay?

Participant: Okay. Yeah, that's cool.

Researcher: So as you might recall, I did ask you how you would rate your mental effort earlier, right? The amount of concentration, so the attention that you were assigning to, you know, the task at hand. What would you rate your mental effort, while you were playing?

Participant: It started off low, but then I saw people crouching, you know, and I was like, and sniping, and then I was like, all right, is this how we're going to play this?

And then I tried to copy that. And then afterwards my concentration went like way up because I was like, all right, I'm going to crouch and then shoot everybody. And then I saw that I was making more kills and it made me more engaged with the game. Because it was like, okay, apparently I'm doing something wrong, because I keep dying. And I want to not, I have to stop doing that. So it started off low, but it increased over time and at the end I was very engaged and trying to improve myself.

Researcher: All right. And what would you say had the greatest impact on that change in mental effort, because you noted that the competitiveness, in a way?

Participant: Yes, exactly. Yeah.

Researcher: Is there anything else that greatly impacted it or is it just that?

Participant: It was also like the number, so like the scoring, like the hierarchy, not the hierarchy, but the leaderboard, right? I didn't want to be last, so I achieved that, right? So I kept checking that a couple of times.

I was like, okay, just make sure you're not one of the bottom, but again, the competitiveness. What else?

Yeah, it was just annoying. Just keep getting killed. I just spotting and I die every time. Like, okay, let's, let's revenge because there was one person that kept killing me. And if somebody killed me and I spawned close to them, I tried to get them first and stuff like that. So revenge.

Researcher: Okay. So really, you know, that competitive drive was the thing that got you to that full concentration in a way?

Participant: Yes, exactly.

Researcher: And what's something that had the least impact, or just almost none in a way?

Participant: I would say there was a slight impact that I know that's recorded and somebody is like looking over my shoulder in a sense. But the impact was not that high.

What else? I think I was missing the map a lot, would have been nice if I had a map because if they're shooting, you can see on the map that people are shooting. So I was missing that information, key information. I just had to guess where people are and just had to listen. It's also like paying a lot of attention to the audio of the game, because I didn't have any mini map there showing me where the shots are coming. Not from, but you can see like an enemy shooting.

Researcher: So, is that something that made you concentrate further on what you were doing? The lack of the head-up display.

Participant: Yes, because I had to concentrate more on the audio and most of the time audio is second. I do still use it in this game, but it's like I also use the map a lot. But now that it's gone, I have to like mainly focus on the sound, because on like looking on my screen, you can also see where enemies are. But you don't see them coming

around a corner or something, so you still listen for that. And I also hear like some other background noise sometimes. It's very quiet now, but also have to cancel that stuff out in your mind. Yeah.

Researcher: No, I agree. So, would you say that you were generally missing the head-up display?

Participant: Funny thing, at the start, when the effort was low, I almost forgot it was turned off. I knew it was turned off, but I just almost forgot it. And then later on I was like, oh, okay, yeah, the map is gone. Okay, I have to adapt, I have to play differently. I just sometimes just stand still and just listen or hold shift and walk so you don't make a sound so you don't hear your own footsteps over it, stuff like that. So I've started out less careful and then I tried some more careful tactics in that sense.

Researcher: So, would you say that the removal of the head-up display had a positive or negative impact? Or a bit of both?

Participant: I mean, it's interesting if I have to adapt, I would say, if it's a positive thing. It's more mentally draining, let's say like that. Same as like around Christmas I broke my right hand and I'm right handed. So I have to adapt, but again that's also mentally draining. So I would say it is negative because I'm not used to it and it just uses more mental energy to play the game without the HUD, head-up display.

Is that negative? It is interesting to play it like this. But if I always have to play like this or if there's a game that doesn't even allow you to have a HUD like that, then I'm probably not going to play a lot of games out of it. Because then I'd already be mentally drained before I'm like, oh, let's play more of those games, or more rounds.

Researcher: So you mentioned that it had been mentally draining, would you say that you were, in a way, forced to play better in a way, you know, pay more attention to the game?

Participant: Yes. Yeah, definitely. I have to concentrate way harder and I have to use different senses, different things around me to figure out what to do next.

Researcher: So you felt in a way more engaged to it, because you kind of needed to be more engaged?

Participant: Yeah, I did feel more engaged, yeah.

Researcher: Okay, interesting. Now, to get back to the other element as well, would you say that you had a feeling of control while playing in the game? And in what way?

Participant: At the start, totally not. I felt, I did have the feeling of like to give up, or something like this is, I keep dying. I don't know where they're coming from. Later on, I did gain control because I thought about like, maybe just listen where they come from and stuff like that.

And remember where you got killed from and where they probably are. So I did gain more control over my gameplay later on, but it didn't click right away in my mind.

Researcher: Yeah, absolutely. Because you had to adapt to playing again, and of course play differently?

Participant: Yes, like the first game I did not adapt that much. I was just playing for the sake of playing, but then the second game was like, okay, I should play differently because the previous game was horrible. Yes.

Researcher: That makes sense. And so in the actual game itself, so the second one, did you ever feel like you were helpless? That you had no control at all?

Participant: I did feel it like at the start, because I did not really adapt to that yet that much. When I adapted more, I did feel less helpless, like especially when I had more than one kill after dying and then also like, one time I had like three kills in a row. But it was hard to see how many kills I got or who I killed and stuff like that. I mean, did see who I killed? No, who I got killed by. But I didn't see the log, like the kill log. And so that was really annoying that I could not see that, because I did want that satisfaction of like, I've killed multiple people before I died myself. But I did of course know that I killed them. Also, I thought I was missing that if I make a headshot, but you already visually see pretty good that you made a headshot. I also discovered that about the game. So I was like, ah, so this flash, this particle is if I make a headshot. I already knew

the sound for a headshot, but there's so much stuff happening. So I used the visual feedback for that.

Researcher: You started concentrating on different things because you were relying less on the head-up display than you did?

Participant: Yes, I was like replacing the information that I normally get from the display. I was replacing that by visual and audio feedback that I do know, but I always use that secondary and I had to use that as the first, which is interesting.

Researcher: Indeed. No something kind of related to that feeling of control, you know, the feeling of helplessness. Would you say that the events that happened to you while playing. Did they depend on you yourself or did they depend mainly on what the environment was like? Other players or things like that.

Participant: I think it's the environment, because the environment kept punishing me. Okay. It felt like I kept getting punished. So then I had to improve fast so I don't get punished that much. And I don't really know how it, how I adapted like the process of it. I could just, it just something just clicked. I was like, oh, let's, I could start it with copying other people, people's weapons play style. And then later on, I just added my own twist. And then I was like, okay, it's not the best. But it's an improvement.

Researcher: So, would you say once you had some personal mastery going on, you know, so once you getting used to playing again, that was the point that you felt like control was back in your hands?

Participant: Exactly. Like at the start, I didn't have control at all. And then at the end, I felt more control. Not all the control yet, but way more. Yep.

Researcher: Okay. Good. Interesting. And then lastly, you know, related to the change in time perception. Would you say that you were losing track of time while playing the game? So, you know, the seconds thing that we did.

Participant: Yes, I do lose track of time. Yeah. If I play this game, I do loose track of time.

Researcher: Yeah. And when was that experience the strongest for you? And was it the weakest? In the game that you just played.

Participant: Oh, yes, to compare it. I don't know. I think like, like if I would have the, the HUD, I would have more track of time. I mean, yes, because you just, you see a timer up in your screen. So you kind of see how long the round is. And so you do see time.

And now you don't see that. So I, yeah, I do lose track of time. Yeah. Because also out of the sudden, the game just ends. And I was like, Oh, okay. So, yeah, exactly. I was like just getting to it. Oh, done already.

Researcher: And let's put it into the context of playing the game without the head-up display. So let's not, you know, not comparing it.

Were there any moments in that game play session, or that you are now thinking back on it, were really losing track of time or were there moments that you felt like you completely had an idea of how fast time was moving or how much time was passing.

Participant: I don't think I had much feeling of how much time was passing. Because I was really busy with, with the game. Yeah.

Researcher: So, in the beginning, in the end, it was about the same then? For example, like the amount of...

Participant: In the beginning, the time in the beginning, it felt the time moved slower. I did just takes that was like, it just takes long this game takes long, especially the first game took longer for my feeling than the second game.

Researcher: Okay, interesting. No. All right.

Okay. Yeah, that was basically about it.

Participant: Right.



Researcher: Do you have any notes for me, something that maybe think was unclear, do you have any questions, maybe a remark, something that you forgot to talk about.

Participant: Yeah, like getting into this. I was not really sure what the goal was or what you're trying to figure out here. I don't know if that's smart to tell a person that at the start or not. But later on, I got that there's something to do with the perception of time and how it changes. But yeah, I think more, more introduction could be more clear. So the person knows the goal better. But I don't know how that works because I'm not a master student. I don't do research.

Researcher: Yeah. Because, you set the expectations for the participants as well.

Participant: Yeah, true.

Researcher: But it's good that you noted that. But I did feel like, you know, once you were answering questions, especially once related to the research, you seem to kind of understand what was going on.

Participant: Yeah, exactly. Over time, I did understand what was going on. But the intro was not clear. From like from the intro, it was not that clear. Yeah.

Researcher: I mean, in total, not that much of a problem.

Participant: No, so let's see what else. Yeah, like I was questioning what if like it did not happen to me, but I was when I hear the first duck noise when I was playing. I was like, should I say that I heard the duck noise or not? And I was like, no, I know I heard it. But what if somebody else, like instead of me, were playing it and was like so concentrated on the game, they did not even hear the first duck sound. Right? Could you imagine?

So maybe maybe some confirmation system or something where, especially when somebody is occupied. Or like, hear the duck noise just to say yeah or something.

Researcher: What's interesting about that is this research is actually on how a person's mental state of flow changes. And an element of that is that complete concentration. So if anything, if somebody were to simply not hear it, or not to notice it.

That would mean that they are in a complete state of flow. And from there, still the questions afterwards about losing track of time so that that element can still be somewhat assessed. Even if that data point is not there.

Participant: Okay, all right. But I was, I was, I was like a bit anxious about it. I was like, should I say that I hear it?

Researcher: Yeah, that's maybe something that I should also ask following participants, you know, or tell them that they don't need to feel anxious about it. But a good that you point that out.

Participant: Yeah.

Researcher: Also, for the record, I also want to ask you real quickly whether or not you have ADHD autism. Because this research originally was not going to include participants with that.

However, there might be a chance that that does change. So, you know, just so I know for you.

Participant: Yeah, I was, I was actually, there was going to be like my second point was like, I'm diagnosed with autism. So that could also make it that I do hear it even when I'm concentrated. I guess.

Researcher: Yeah. Yeah, definitely. I mean, one of the elements of autism is a different sensory processing. So you just simply hear things, even though you fully contemplated.

Okay. Well, you want me to send you the codes again so that you can revert the changes.

Participant: Yeah. Yeah, that good.

Researcher: Okay, let me get them.

So, that's first one.

Participant: The party one and party zero, I guess.

Researcher: Yes.

Participant: And then these ones zero zero zero. Okay, yeah, I've reverted them. Double check. Yeah.

Researcher: All right, amazing. Well, let's say if there's any, you know, other questions later on, once we hang up the feel free to message me.

And also, if you say, hey, maybe I don't want the data gathered this interview to be used for the research. Do feel free to send me a message or an email to the email address that was on the poster. Okay.

Participant: All right. It, it does feel very time consuming for you to do it like this. But there's not really an other way it is kind of the point.

Researcher: It's qualitative research that tends to be the more time consuming part of the two. As you know, you need to talk to people and ask about everything. But yes, you know, that's a sacrifice I'm willing to make for knowledge.

Participant: All right. Yeah, and do keep me posted on like the any outcome and stuff like that. Like, at the end of your research.

Researcher: Maybe I'll also tell you... I'll stop the recording real quickly.

Participant: Yeah, yes, that's good.