001

[like or dislike each of the techniques]

S&T? I dislike it because every time I was in front of the door the disappeared and I lost focus and the direction I need to take. So it was kind of confusing compared to the other three.

Horizontal was not the best but not the worst. It made me feel like I was inside the home but it feels strange but somewhat comfortable and I understood where things were and where to go. It was less confusing.

Vertical was one of the easiest of the four techniques. It was very clear the direction you need to take to go to the next rooms. It was easy to manage for the task.

The Accordion was the best, the most immersive, at least for me. It gave me the impression to be really in the home. My eyes were not dizzy during the experiment.

[door?]

Every time I was in front of the door I wanted to take the [doorknob] but I couldn’t, I didn’t need to. I had the feeling that I needed to touch the door and this was strange. The fact that I could not interact with the door was strange. [and if it was a sliding door?] Maybe it could be better.

002

[like or dislike each of the techniques + also the most like natural walking?]

I preferred the Accordion. I felt like I was the most in the environment and also it was easy to remember where I was in the environment.

The Vertical made me the most nauseous. It made me feel like I was being swerved around while not moving which was really weird.

S&T I kept on losing track on where I was because it kept on making me face the door and I kept on losing track of where I was and where I was planning on going. So I completely lost track of where I was.

The Horizontal was okay, but it felt like the moving was a bit weird. It felt like it was hard because the walls were real and whereas in the Accordion you could see the walls which made it much easier to see where you came from. I liked it when the doors were on the floor.

[door?]

I think if the door, e.g. Accordion/Horizontal, you need a door there to have something to walk to. If the door was straight then an opening would be just as fine. I liked being able to see where I’d come from, so if there’s no walls, it’s fine but if there were both walls and a door then I kept on losing track of where I was.

003

[like or dislike?]

I liked Vertical. I think the other ones were all kind of confusing because I had to adapt to the fact that it’s not a natural way to explore space.

Horizontal was comfortable, but it wasn’t as natural and Vertical was the best compromise because it’s still a vertical door. There was some weird effects [with the others] and I felt the most comfortable with vertical and horizontal.

S&R has the potential to feel natural because there’s no special effect but I have difficulties mapping the space after the reset. I’m not sure what the reality is. It’s also that I had to learn how it works during the operation. It was confusing to map the space.

Accordion, I don’t understand the purpose of that weird stuff. For me it’s confusing and I didn’t see the purpose of it.

[natural walking?]

Vertical felt the most natural.

[door?]

For the horizontal doors (flat doors) it would be relevant to make it something other than a door. Also, maybe it’s fine that it’s a door. Maybe I would map the space better if it would be a door, like a transparent door, or just a door frame. I think it’s important to stitch together the place from what I can see. There are some transparent stuff (windows, openings between rooms) but the door being transparent would help me with configurations.

004

[like or dislike?]

S&R? What I found unrealistic was when I was switching the doors and when I entered the second room, I entered my face towards the door, when in real life it would be like of course – you go inside the door you face the wall in front. Initially it really bugged me in the start but when you get used to it it’s alright.

Accordion was with the down-doors, something not very common regarding doors. It was pretty much okay.

Some structures I can say visually were not very in parallel with the structures I see in real life.

Yeah, and of course I’m not sure it was this one but the plants were coming outside the structure? The fact that plants were just floating outside in the air was a bit buggy [noticed for Vertical and Accordion]

I didn’t particularly notice any difference between walking and walking in that environment [VE]. I was just more skeptical because I didn’t want to push things here. Otherwise in the virtual environment my walk was pretty similar as in my real life. I was just more curious about the objects around.

[door?]

There is some scope of improvement. The doors in the whole experience was the thing that the most different from my usual reality. I noticed there were many different ways of going by the doors. The side and not the different walls. It made me stay in this particular area. It was the experience that was the most removed from reality, moving through the doors. [what if there wasn’t a door?] It wouldn’t have been natural if the door was just an opening.

005

[like or dislike?]

Horizontal? The one I dislike the most is the one you fold because you couldn’t see through the spaces.

Accordion? I liked it. It was confusing to getting into how the doors are. Because they’re flat, it feels like you need to walk around the doors.

Vertical? That was a bit confusing sometimes because you rotated and you were looking at another part of the wall. But you could see through all the spaces and that was nice.

S&R? That was a little less confusing that Vertical, because you also turn around but it’s more direct in the way you turn around otherwise you might be facing a wall.

[most natural?]

Huh, it’s a difficult question. I still just like the S&R because it’s kind of natural walking except you need to turn around so it’s like you’re pacing the room. So that was nice.

[doors?]

I think it could be a sliding door/phase through. I don’t think it should necessarily be a door, but I think it should be indicated very clearly that it’s a way through and not just a hole in the wall. It might just get confusing at that point.

006

[like or dislike?]

So the favourite order – the stop reset was the most preferred. The fading and the me turning around myself after the fading was less disorienting…although it was also disorienting because I had to turn and my mental map of the room was just flipped as well, which was weird.

Second one was vertical. The vertical one flipped the whole room, which made me kind of dizzy.

I really didn’t like the Horizontal because I didn’t have an overview of the room, while I did for the others through the doors and the windows and everything. Also the rotating was really making me dizzy.

The accordion one was a bit better in the sense that the floor remained stable. What I also mentioned while filling out the questionnaires was with the doors laying on the ground – I think I was focused too much on the doors which made me less aware of the environment and probably also explains why I sucked at the memory questions.

[natural walking?]

There was a difference of course. The S&R is of course different from reality because of the fading thing and because you had to rotate, whereas in the usual environment I can just go straight ahead. So there was a difference. Did it really bother me? Maybe there was this learning curve in the beginning when I was standing too close to the door and I turned and I went into the same room again. Probably for a while and getting used to the interaction I would perform better. It is kind of similar to a real door. [Fading in and out not a factor for natural walking?] Nope. It felt natural to walk towards the door. It did influence my movement. I don’t literally stop in front of the door if I want to open it, so I think it did influence my walking behaviour but probably less compared to the other three settings.

[door?]

I would prefer vertical doors. I don’t like turning so that’s why I don’t really like the Vertical rotating thing.

007

[like or dislike?]

Let’s start with the first one, Horizontal. I think you had the feeling of ‘tipping over’, like you came close to the ground, and that induced some nausea. After that experiment I was the most dizzy compared to the rest.

And then S&R, there was no dizziness, but there was a less of a sense that I was ‘present’ in room. It’s like you stop, and then you close your eyes, and then you open your eyes and something has changed. But you have to relocate yourself for sometime just to get to know the places again.

Accordion was better in that sense, but still if you compare Accordion with Vertical (which I put the highest), but I felt like Vertical was more immersive – because in my head, Accordion is kind of the helmet of the previous room that came in front of you and blocked your vision for a tiny bit and then when it came off you could see the room again. So the blocking of the vision made it a little bit less immersive. I had a feeling that it was still necessary because if you didn’t have that blocking then it would be too disorienting because everything happens at once.

Vertical I liked it the most, if you compare it to Accordion, was a little bit more dizzy, because I had the feeling that I was moving more. It was more pleasant because while you were rotating you could look around and still could orient yourself based on the things you see so I still could feel the most as if I was walking through the space.

[door?]

It could be an opening but it would be too confusing. In my opinion, it’s important that it has to be a solid. It’s important that you have the feeling that the room ends there in the real world. So when you approach it, then you change. If it’s not solid, then you start walking through it and walk against a table or something.

008

[like or dislike?]

The first one was the one like a normal door and if you go through it, it turns around. [Stop&Reset]. I liked that one the most because I think it makes a lot of sense. The only thing is a usability issue. [flicker in/out was not disruptive?]. I like this one because it is more intuitive.

There was one where I walk to the door and everything flips around. That was Vertical? That’s also interested but probably that one is more confusing because everything around you changes locations, everything flips. Also a bit scary because everything moves. Every technique can fit in a different scenario.

The last one [Horizontal] is like a cube, because everything is rotating and the door is orthogonal. You walk to the door and then it rotates. That’s also an interesting one. I just think it takes a lot more effort. It feels like you walk more. It depends on what is the goal of the thing [experience]. If you want to keep walking, then you just rotate the thing and you keep on walking and walking and walking.

[Accordion] That one, hm, yeah that one is also interesting. I forgot now, what happens in that one? [folds space in the middle like a caterpillar]. That one is also confusing, because everything is just coming to you. That one is just very confusing to me.

[natural walking?]

Probably Horizontal felt more like natural walking. The other ones it feels like you’re naturally walking but sometimes it stops. (Different from favourite technique). Your action of walking is interrupted in the other ones. In this one because it’s naturally moving you feel like you are constantly moving.

[Door?]

When you see a door, you know that you can go there and something happens – you go to another direction. If you have something different, that can indicate that you can move to a different room, yeah then that might be interesting. Especially for the doors when they are on the floor, right? Because it’s a bit confusing that you see the door there. Maybe if you put some arrows, then you can indicate that you can go this way. Then you know that you move to the other room.

009

[like or dislike?]

Obviously the vertical, it felt like I would fall over.

Accordion felt a bit unrealistic but I don’t remember any other complaints. I don’t think it’s too memory.

Horizontal, oddly enough, I felt like the room was only half as big.

S&R, I think it was the best one because there wasn’t really anything wrong with it but still felt somewhat natural.

[natural walking?]

No, I don’t think so. S&R felt the most natural, also probably because [I didn’t like] the doors on the floor.

[Doors?]

I feel like the doors on the floor felt unintuitive because you had to walk to the front of the door. If you think about it, then I guess doors are quite a natural transition, I suppose? Because you’re so used to going through a door. I don’t feel like a lot of these techniques would feel good if there was nothing (as opposed to a door being there).

010

[like or dislike?]

I liked to see the full environment, to see through different rooms. I think it makes a lot of sense, that you can see the environment where you are [S&R, Horizontal, Accordion]

I didn’t like folding, getting into a room and then the space is like folding. That can make me a little bit dizzy. [Vertical, Horizontal, Accordion]

S&R is my favourite technique because you can see through different rooms, but then you have a break when you get to the door. And then the reset, because that makes you feel that you are avoiding real objects that can be present in the room. You are reaching the limit of the room, so you stop, turn, and then you keep on going. [that means you were less present?] Yeah, in this technique I was more aware that I was in a virtual environment. But also in my mind I was thinking that I was always in a virtual environment, which is why I enjoyed this technique.

The first that you showed me, where everything was folding [Horizontal] was my least favourite.

Accordion, even though it was folding, because you could see everything it was better.

[natural walking?]

The first one, the Horizontal, felt the most ‘natural’ to walk through [even despite all the flipping?]. Yes.

[Door?]

An empty space wouldn’t work. A door is very convenient because it’s a mark to go to the next room. I wouldn’t change that.

011

[like or dislike?]

I didn’t like the transition that I have the wall straight into my face[S&R,Vertical], or even when it was transitioning upwards. I didn’t like the doors being on the floor, it’s very confusing [Horizontal,Door]. I didn’t like the fact that I couldn’t look outside. It felt very real, and then suddenly, it felt unreal when I looked outside [there was an empty skybox]. I feel like the model needs some more details. The model needs to be a little bigger. The environment can be limited, but it should look a bit bigger. The other thing I was disappointed with was that there was no deer.

I preferred my favourite technique [vertical] because it felt the most real but I didn’t like the fact that it bashes the wall into my face. But after a few transition I figured while I’m transitioning I could rotate myself and it felt better. It was the most realistic out of the others.

[Most natural?]

Horizontal one felt less realistic because I had to open the doors which were on the floor but somehow the transitioning made it more realistic, but maybe not so realistic because it felt like I was climbing up or down somehow and in the other cases it felt like I was in some long corridor. The fact that I could like I’m climbing up or down is a good experience. I didn’t expect this, especially not after going through the other ones, which feels like a long corridor. I find enjoyment in that, that I have the ability to climb up and down. But yeah, at the same time, it’s a bit not so comfortable to look down and open the door on the floor.

[Door?]

For me, I always saw the door in the same colour, at least from what I remember. For me it was just a means of going to the next room. I almost ignored it. It wasn’t distracting or anything. I would expect (if the door was a hole) more reality. When I saw the balcony, I was trying to look outside. Same with the window. If there was a hole or stairs I would try to test it first.

012

[like or dislike?]

I think the thing is that actually you can really present a world that is unreal but is something that is close to your daily life. That’s a good one. It’s not good perhaps in the resolution of the images or the view. The view, I saw, if you stay there for seconds if you stare at it, it’s really like you view an artificial thing.

I think the doors, if it’s vertical, then it feels like if I were close then it would open, like what you would really do in reality. However, you need to make sure that you’re not so close to the door [S&R] then maybe it would interrupt this (code) function, and didn’t work so well if you wanted to enter into the same room.

I like the vertical doors but the horizontal doors I don’t. If you’re too close to the horizontal door, you’re not sure how close you need to be (to trigger it). You need to make sure that it’s really the right steps in order to open the door for me (not as intuitive).

[most natural?]

I think it’s still a little different from reality. I’m not sure if you’re wearing these glasses. I’m sure in reality, you don’t need to turn around. But in the virtual reality you need to check purposely – you need to turn a bit of your head. Now it’s like you’re reality is already so close. S&R was the closest to natural walking. There was not so much difference with reality. Hmm, now I’m not really sure, but it’s more like the same feeling now.

[Door?]

Of course the vertical doors, because I already have the stereotyping of the vertical doors in our daily life. If I see the horizontal doors then it’s something different. Then I need to challenge yourself. Then I’m not in real life I’m in virtual reality. [should the door be a door?] I think I still prefer the vertical door. [and if it has to be a horizontal door?] Then I think I would like a ladder, a vertical ladder. Horizontal door doesn’t feel intuitive.

013

[like or dislike?]

S&R was pretty confusing because I couldn’t orient myself. When it goes black, and then there was a wall that was really close to me, then I didn’t know where I was before. Then it was pretty hard to orient.

For the Hor and Ver it’s pretty similar but it rotates so fast. It was okay because I could orient myself and I knew where I was, but it made me a little bit dizzy.

Accordion was the one I liked the most. Also it was the first one so I was amazed by what was happening. It’s also something that you can imagine will transform in that way. For the Ver and Hor you can imagine in real life… actually less for the Hor. For example for the Ver in stage sets they can actually do that for scenes. For the Accordian, I was pretty amazed.

[Door?]

In the conditions that you leave the door on the floor, it is not natural. And then again it can be of course something else, if it’s lying on the floor. It was not distracting, because that when I step on it I know it will flip and then reveal a new space. It’s like when you stand between the dimensions and then there’s a clue for the other dimensions. It’s spooky, it’s not supposed to be there. But sometimes it affects your experience of the space because you know it’s not supposed to be an element there.

014

[like or dislike?]

About the Ver, I felt like I was trapped. I felt a little bit of vertigo whenever I changed rooms.

Horizontal one was the one I preferred, actually Accordion, because you could have a view of the environment and it wasn’t that invasive and the swap between rooms was quite fine. You could also have a feel of where I am in the environment.   
S&R was also quite fine, I wasn’t too concerned only that sometimes the door, I came back, but maybe that’s implementation-wise because sometimes I stepped and I moved back to the previous room. I didn’t feel any concerns about it.

[Door?]

Horizontal door was fine. Also I was thinking stairs, because it is weird to have a door there. It’s not that distracting. You know you need to go there to change the rooms.

015

[like or dislike?]  
The last one I didn’t like because it was dizzy and disorienting [vertical]. The others were all kind of on the same level.

Hor – that you can’t see the whole environment was difficult for the task at hand and it was more difficult to get an overview of the whole environment, but when I think of it, in comparison to Accordion, the passes between different rooms were also fluid. I think that’s the word I want to use for it?

S&R was kind of fine to keep an overview but often it was like walking into a wall, I had to turn. But after I turned it was kind of intuitive.

[Door?]

Good as kind of a cue. However I had a bit of trouble sometimes getting it to function (the horizontal door), where you needed to stand to make it work. But overall I think it’s a good idea. When the Hor I kind of the feeling of walking up/down. Maybe there it could have been a trap door. But the idea stays the same. With the accordion and vertical ones I didn’t have any trouble.

016

[like or dislike?]

The first 3 except the Hor because you can always get clues to where you are exactly in which room you are, so you can still see the environment from the setting of other rooms.

S&R there is one, maybe one second black things, which gives me time to prepare my mind to go to another room, even if I need to go to another room. But I feel comfortable, I feel prepared. [black fadeout did not break presence?] No.

Vertical is one that’s bring some motion sickness, since you see the whole environment has changed but you know you are just standing there, so there is some conflict between the physical and virtual world.

Accordion bothered me. When the door is on the floor, if I need to go back and if I need go there again, and if I’m time-stressed…. It was fine though. If there are 5-6 rooms. Normally if the room is like 2m depth/long? Now I’m not sure with the number actually, but I feel like for that one – first I know where I am, secondly even though the room is also moving the part I’m standing didn’t change and was always stable. That was still so it didn’t bring any motion sickness. In the field of view the stuff still stayed stable so it didn’t bring motion sickness, well it did bring something but I could figure it out. And then it changed behind me so it didn’t affect me as much.

Hor – I even lost direction in the third room. I feel like they’re too similar (the rooms). Sometimes at some point I thought is that the roof again? But when I went back I realised I just lost my direction.

[natural walking?]

I think the natural one would be Accordion. But my favourite one was the first one, S&R. Now I feel like in S&R that approach was bigger than the Accordion one. The reasoning is I feel like I explore more in the S&R room and the site is bigger. The only thing is that I need to make sure I’m not in the proximity (of the door) otherwise I’ll jump back to the next room.

[Door?]

I feel like the door, maybe like a cabinet? To put something (behind) there and put the door still vertical. [Ah I see, to actually block off the door and put a cabinet behind]. Maybe that is more natural because if it’s a door on the floor maybe you feel like it’s something you open and you go downstairs. [did you feel like you were going up or down?] No. I think it’s based on my experience (I had a room then) and the stairs are hidden behind the small trap door. If you open it and then you climb to the roof. Then it’s literally on the floor.

017

[like or dislike?]

[S&R] Because it’s not as real as other techniques, and because there is a fade-out and I need to communicate with you to find my direction. It wasn’t good for my cognition.

I think it’s easier [Accordion] to get through the door and get to the next space and I feel less stressed out.

Ver I disliked because I always lose my direction in that environment. And everytime I enter a door I just face the wall or face a door and it makes me as if I’m going to fall down.

Hor I think I like it, but that really, because compared to the vertical doors it was easier to get to the next door and the next space.

[natural walking?]

Accordion was also the same.

[Door?]

It’s very easy to be distracted by the doors. (ground doors) were okay.

018

[like or dislike?]

I disliked the Hor because you couldn’t see the whole room and it was fragmented while with the others you could clearly see. It was more of this feeling of being in the house (with the others).

Every technique had it’s own way of disorientating, which is of course quite natural.

However I have a problem, and this is something I also find with videogames, with S&R which puts you in front of the door and you have the reflex of stepping forwards after which you immediately need to turn around. In videogames I had that problem in which you kind of start walking through the door 17 times. In that way it’s something I dislike but it’s not extremely important. It’s a minor trigger.

I think I prefer the S&R and Vertical than Hor and Acc because you step through a vertical door. A horizontal door is a weird concept.

While the Ver does disorient you and puts you in a weird place in the room, I feel like you can get into it and get used to it.

Accordion I preferred it over the Hor because you could see the whole room. I also liked the way you moved through the rooms. It felt quite natural. I think the only problem I had with it was that the doors were on the ground. I think the immersion and benefits for Acc was quite similar to S&R and Vertical, but the difference was that the doors was on the ground.

[Door?]

If you made a vertical door instead of a horizontal door and made a small area in front of it. Maybe make it transparent. Then I think it would be more immersive.

[Natural walking?]

Diff than favourite technique (Ver)– felt most natural in Acc because you could walk in a straight line (as in continuous?). It was not disorienting. You weren’t replace or turned around. You just were in another place with the same orientation. It disorientated me the least.

019

[like or dislike?]

Some of the techniques I feel like I was lost, or afraid, or not feeling comfortable. I felt like I was inside somewhere I didn’t know. I also feel like it’s cool and I want to discover more about the experience.

[Hor] I like the most because it was the most interactive for me. I could go and everything could change. I felt like I need more from this.

[Acc] I miss to be in touch with the experiment. I feel like I’m lost or in the middle of something. It was not like the others.

[Natural walking?]

Same technique – also Hor

[Door?]

I think doors for me, I want to go through it. But maybe I could change the, or maybe I could put some arrows in the air or the floor so that I can discover how to go through the door.

020

[like or dislike?]

I preferred the Acc because you had an overview of the entire room. It also felt like I kept walking and walking and walking, and I wasn’t constrained by the environment. I even checked through the hole in the VR headset to check ‘am I going to go through a wall? Because I’ve been walking for so long”.

With the others (less continuous), e.g. the one that teleported [S&R] or flipped around [Ver] you were like it’s (the VE) is doing something, so I’ll just let it do something. The S&R even made me a bit nauseous so it’s really not that good for immersion.

Hor was fine but it just felt like you didn’t have a good overview of the entire room. It felt like you had to go back but you couldn’t look back. Whereas otherwise you could just turn around and look back. But it did work way better for me.

[Natural walking?]

Acc also. They’re the same.

[Door?]

I think the doors were fine. The only thing is that it’s a bit odd if you walk to the side, and then I’m standing on something. For me it felt intuitive, especially if the door was standing up. If they were on the floor, it did sometimes feel a bit odd. But if you went up close and then triggers and you see it up there, then it was fine. If you approach it and if it became more apparent that something was going to happen, e.g. if it was gray and if you start approaching it then it gradually becomes yellow and then it triggers.