**Transcript of “Turing”**

**In: Interviewer**

**R: Respondent**

*Ultrasound, 00: 00-00: 32*

*Stimulus: [125 Hz, Circle, 8]*

I. Perfect. Then you have to take them off. What do you think immediately?

R. Well then, it feels as if there was something a bit like a feather running like that across the palm from the base of the little finger to the base of the thumb. But it was such a bit in jerks, so it does not feel quite like such continuous movement, but more like such small… And then it also feels more like such a gust of wind than it feels like a feather.

I. So something between a feather and a gust of wind, would you say it was?

R. Yes. A bit like such a fan in a public toilet, where if you move your hand, you can feel the pressure in different places on your hand.

I. Well that sounds very exciting. If you were to relate it to something you've experienced before in your life, would you say 'well, but it was this fan', or would you use something completely different there?

R. Yes, if you took a bicycle pump and pumped air out, and then pumped the air out so that it was from like this over your hand while you exhaled the air, then it is such a bit of a feeling that the air is moving over the hand.

I. Yes.

R. Yeah, it was kind of a little different because there were some small jerks like that and not like that… It was still a continuous movement, but it does not feel completely continuous now, or something like that. It still feels like it was small bites. Yes.

I. So it's not quite continuous, but still such some small breaths in certain places on the hand?

R. Yes. And it's a bit, if you did it with a bicycle pump, for example, then it would feel completely continuous, but this it feels very continuous, but still not completely.

I. More like a dotted line, almost? Or what?

R. Yes, a very closely dotted line. That is, where you can still just see that it is dotted.

I. If you were to describe it to, that is, how it feels, to someone who has not tried this device before. What would you say?

R. It feels a bit like such either a feather being jerked across the palm from the base of the little finger to the base of the thumb, or also the gust of wind going the same way. So such a strange combination of the two.

I. Cool. Is there such a thing, that is… Did it feel different the first time you felt it versus the third time? Is there such a development in it?

R. I think, the first time I was very aware of "how does it feel", where the third time I tried to just accept it and be a little more "it's okay", like "it feels okay". So I think, the third time there was such a little more empathy and there I was more like "maybe it's a feather moving over the hand", where the first time I was very like "what happens and how each breath feels ? ”- like. Yes, so I think at first I had more of such an analytical approach, whereas at third it was more like a feeling of "how does this feel?"

I. Is there anything else you would like to comment on?

R. No, I do not think so, no.

I. Would you describe it as being perhaps pleasant or uncomfortable, or?

R. Yes, it was very pleasant, it was not so uncomfortable.

I. So a little okay?

R. Yes. It was not like I felt uncomfortable.

I. That sounds nice. We are not going to do that on a morning like this. Cool. But if there is nothing more you want to say, then we can try the next stimulus.

R. Okay.

I. I'm thinking. So if you put the headphones on again, then…

*Ultrasound, 05: 43-06: 12*

*Stimulus: [125 Hz, Brush, 1]*

R. Yes.

I. That was it. What do you think?

R. So this was, it still felt a bit like a breath, but this time it moved from the bottom of the hand, up through the palm and then to the two middle fingers, and there it was more like, it feels more like vibrations. Well, there were such small rapid vibrations where the breath was. Now I call it just breathed to be able to describe it. So it feels more or there was such small vibrations along the palm.

I. Yes. Now you say the little vibrations, is it something you've tried before that you kind of got this feeling?

R. I think so. I'm not quite sure it does not feel completely unfamiliar, or such. Yes.

I. Is there a particular thing that comes to mind when you think of this feeling?

R. No, not immediately, no. Well, it feels so… How the hell… If you have a very old car where you turn on the engine and such the whole car shakes. So, it's kind of like the feeling of vibrations in a material. Yes. But this is so much more local, right? So, if you touched a material that vibrated, then it would be the whole hand that vibrated, ik ', but like this it was very local and small vibrations. Yes.

I. If you were to describe it to someone else, would you use these gentle vibrations again, or would you try to describe it in a different way to someone who has not tried it before?

R. Yes, I think such small vibrations up along the palm. Yes, I think that's my best bet. Yes, so that the breath moves, but the small vibrations are like where the breath is, or something like that. They follow as if breathing.

I. In relation to the second stimulus you had tried just before, that is, the one that was there dotted line-like - how would you relate this to it? Like in relation to, is it more comfortable? A little tired, right?

R. So, the other feels more natural like a gust of wind, and this feels more like such still a gust of wind, but as if there is something like that, you put something that vibrated up against the hand, which you then moved. But there was not the feeling of touching the hand, that is, so it was still such a feeling of gust of wind, but where the vibrations then moved along with. And it does not feel natural, so it was not a feeling of, "now I experience something, something I would naturally experience in everyday life", ie where the other was more like, feels like if you got air breathed on your hand, or something like that , it feels more like a natural feeling, where I never think I would experience this “in real life”, or anything like that. Yes.

I. Are there any other things that come to mind?

R. Yes, I think it was a little wider than the other. So, so the other was such a narrow airflow, which, well, it's not so good on sound to show, but this from here, where this one went like two, yes so the whole… Yes, so if you say that it second was the width of one finger, then the width of this three fingers was across the palm. And then of course it was a different direction, so where the first one went from the little finger to the thumb, then it went here from the bottom of the hand up to the top of, or the bottom of, the middle fingers. Yes.

I. Cool. Yes. But if there is no more than that, then should we try one more stimulus?

R. I could just say that in terms of comfort, the first one was more comfortable because it was so natural, felt natural, where it was a little more so unnatural, so you have to accept that it is not such a natural feeling. For one to begin to feel comfortable with it, I think.

I. So you would say that naturalness is easier to feel like being comfortable? Because you kind of know what it is, right?

R. No, not necessarily. It's just that it's easier to associate with, or it's easier to think like, 'Well, this is what I know,' so you don't have to think about it as much, or anything like that.

I. So it's more the thing about having a relationship with it in some way that makes it easier?

R. Yes, or just that you should not think like that about "what is happening now?", "Is this dangerous or strange?" or such. One is more accepting of the first, I think. If you did not know what it was you were doing. Or if you did not know it was a machine that did it, right? Yes.

I. Yes, then you would say that it was a little creepy that it was a machine that kind of touched one, or does it depend on what kind of stimuli it is like being played?

R. Yes, okay, I can also try to say it another way. If I came walking down the street and suddenly got a feeling that there was a gust of wind in my palm, then I would like "Well, but where does the gust of wind come from?" If I suddenly got the feeling that it was vibrating, like here number two, like this up through the palm of my hand, then I would be like a little more “What's going on? Is there something wrong with my hand? ” So it's such a different feeling, a different association you get with this one than you got with the first one.

I. Okay, super.

R. Yes, I think it was.

I. Cool. Then we have to try the next thing here and see what happens there.

R. Yes. I'm wearing earmuffs.

I. That's nice.

*Ultrasound, 13: 56-14: 25*

*Stimulus: [250 Hz, Random, 8]*

R. Yes. This again feels a bit like breathing, but this time it was not like it went from one place to another, it was more like small fast movements that went like that in lines. So that way one could go, yes from one place on the palm to another place, and then it starts like from scratch and goes from another place to a new place. That is, so that there are several different lines along the hand . And I could not quite decipher whether there was a pattern, that is, that there should be a cross, or whether it drew something like that specifically, but to me it seemed most as if it were just such random lines along the hand. But where one could so clearly feel that there was a line, and then there was a new line. And then it went relatively fast between the lines, where the other two have been so slower, then it was here so faster and yes, they moved faster, the lines. And again, these would mean that you have to spend for these processes. But not a strong gust of wind, more such a… Nor a feather… How the hell should one say that? Well, I could clearly feel there was such a feeling that there was a line. Yes, I… A very light gust of wind maybe, but then so thinner than the width of a finger. So this time it is maybe, I do not know, the width of a pencil, maybe even smaller than that, and then faster, and then such a random stroke over. Yeah Al that sounds pretty crap to me, Looks like BT aint for me either, Looks like BT aint for me either, Looks like BT aint for me either, Looks like BT aint for me either. Well, there was no such feeling of touch at any point.

I. What is missing for it to be touched in relation to a gust of wind? What is the difference between the two things?

R. (long pause for thought) Yes, it's hard to explain, but I think, first of all, I kind of think there's no pressure. So, if you give someone a hand, or something, then you can feel that there is such a pressure, and it is not there in the same way. It's like something that just kind of tingles to the hand. And there is also no such feeling that, how can one say that the skin… it does not feel as if the skin so tells me that there is touch. It just feels more like there is a gust of wind along the palm.

I. It makes good sense. Is there anything that you have experienced in the past that you would say was, did it look like this somehow?

R. Yes, it should probably be like running a pencil along, in such strokes across the palm. Not, that is, if you do it with a pencil, then it feels more like such a sharp object, but more like that there feeling of having strokes along the palm. Yes, that I think is my best description. This was not uncomfortable either. It just feels more like that, so each line was like a new line, so it feels like there was such a stop, so it also feels a little bit like there was such a puff up, or like it dotted a little bit too. So each line was a new breath. Yes. So it also tingled a bit in such a hand. Yes, I do not know if…

I. I think it makes good sense. If you were to describe it to someone else who has not tried the device before, would you also use your pencil analogy?

R. I would say "narrow gusts of wind that go across the surface in a random pattern that feels like streaks". And if they do not understand what I mean by strokes, then I can say "a bit like a pencil, but not like a pencil".

I. Yes.

R. Yes, so it's more, the pencil analogy is more to describe how the lines are in this regard, than it is that it feels like a pencil.

I. It makes sense.

R. Yes.

I. Cool. Are there any other things you think are relevant to say to this stimulus?

R. Yes, I think a little, so there were those lines, but I also think there was such a general breath. Well, so not only does it feel like there were streaks, it also feels like every time it started on a new one, there was just such a breath that hit the whole palm. And I do not know if it's just is, every time it starts, that then comes such a general feeling, but I think it seemed as if there was such a thing that you could feel the line, but then there was such an area around the line where one could feel a little. Yes.

I. Yes. It can be nice. I think that is completely fair. Cool. What makes us try one stimulus more?

R. Yes, for my sake like, yes.

*Ultrasound, 21: 44-22: 13*

*Stimulus: [16 Hz, Point, 8]*

R. Yes.

I. What do you say to it?

R. This, it was like that… Now I call it wind blowing again, but it was like wind blowing like that directly in the palm of my hand. Yes, and then there was that feeling of vibration again. As there was also in number two. Which is like… Yes, I found out here now, so in another question that asked you if there was an object or something I had been thinking about, and I realized now because this feeling is familiar that it is because two years ago I bought a PlayStation controller, which I put to my computer and played games, where when I then died in the game or was hit in the game, it also vibrated. And the feeling, it was this feeling very similar. Yes. So such PlayStation controller Haptics. So I've tried it before. I simply could not figure out what it was I had…

I. That's fine. It's completely fine.

R. Yes. But it's funny because this feeling, it was much more strongly associated with it with controller haptics than the others, that is, because I did not think about it before. And I think so too, because the controller I have is not super good, but that's why it's so local that you felt in the middle of the palm that it vibrated, and it was the same way. That you got a gust of wind in the middle of the palm, but saw that vibration feeling there too. So the first thing I thought about was "now I died in the game" because I got this feeling of vibration. So I have like an association with that this feeling of vibration in the middle of the palm as such a breath, or so what can you say, as such a tingle in the palm, but also with that feeling of vibration, it is when you gets hit in the game. So there I have an association of "now I die in this game", ik '.

I. And it is a…

R. But it feels like such a dot in the middle of the palm, this one where that the other feels more like a vibration in the whole palm.

I. And you would relate it to this PlayStation controller and stuff like that?

R. Yes. It's not a PlayStation, it's a what it's called, X-Box controller, but ...

I. Same same. (English)

R. Yes. But that also means that in that questionnaire I have actually tried Haptics before. I wrote "never", but…

I. Jaaa, but not [indistinct word, 25:37]

R. Okay, that was [indistinct mumble, 25:39] Okay, fine. But yes, there were such small vibrations, and then it was in such small intervals at one second intervals, maybe half a second? It's hard to judge now where that… I did not speak it, but there were at least such small breaths at intervals, maybe half a second intervals. Yes. And then there were those small vibrations, which were very fast, but as such felt like vibrations in the middle of the palm.

I. Does it remind you of anything other than the PlayStation controller? What do you think?

R. Yes, so it feels as if you took a finger and dotted in the middle of the palm, but there is not in the same way a pressure. Well, it's not because… [mumble, 26:47] If I press with my finger, then I can feel that I press like that up against the palm, so it just feels like there is someone doing such a dot without press against the palm of your hand with one finger for example. And then there are those extra vibrations. So if we said my finger was vibrating and I then pressed against the middle of the palm, then it would feel like that.

I. Is that also what you want to say when you have to describe it to someone else? That you like "my finger vibrates, I stick in the palm" -like?

R. Yes, I think that would actually describe very well that way, yes. I do not know exactly how to describe my finger vibrating, but such if you had something similar to a finger vibrating, which then tingled to your palm at such intervals. No, it might not be, it's not half a second. One tenth of a second apart.

I. Cool.

R. Yes, I think that's the best.

I. Are there any other things you want to say about this stimulus?

R. Yeah, well, both like this the first one before we started the experiment, and this one like that trying to hit around here? And I wondered if it was like that… So for me it felt like it was further up than actually the middle. Well, it was like that, if you imagine the middle of the palm, then it was like an inch higher up. And when I say louder, I mean up to the middle fingers. It's just to say that it's not like that in the middle of the palm, but like that a little over. Yes.

I. That sounds very true. Cool. Should we try one last?

R. Uh, yeah, we can do that.

*Ultrasound, 29: 15-29: 43*

*Stimulus: [250 Hz, Point, 1]*

R. Yes, this one was much weaker. Weaker… Well, it was a bit like a gust of wind again, but not so much at all. So, there was less pressure. Pressure is also a bad word. [Unclear, 30: 24-30: 26] So, there was less wind per unit of time. Yes, so the others were such a little more, there was such a strong gust of wind, and this was such a weaker gust of wind. Yes, I think that's the best way to describe it.

I. So it is very much in relation to the others, ie the previous stimuli, that it is weaker than them?

R. Yes, there is like less gust of wind. And then, well then it was like that in the middle of the palm, maybe a little up. I was not quite sure. And then it was continuous. So where the others have kind of either moved in small jerks, like dotted lines that we talked about, so this one was just like that, feels like such a continuous gust of wind in just over the middle of the palm. Yes, there was a little bit of vibration, I felt. But not much. And if you did not think about it so actively, then you would not notice it. But there was a little bit of vibration, I felt. And then, well then, it was more like continuous that there was just a little bit all the time. As if you have a window open and there is draft or something, so there was such a constant wind current that you can feel. But funnily enough not cold or hot. There are none of them here, so usually when you think of a gust of wind, then it is, it has a different heat than the surroundings. And there is no heat difference with them here. So that way, wind blowing might not be the best. But that's the way it is. So there is no heat difference with these. Yes. So such a move without it being cold. And… Continuous… Yes, is continuously fine, or should one use another word for it?

I. I think that's just fine.

R. Okay. But yeah, I do not know exactly what to associate it with. Because like that, it's rare to get such a continuous gust of wind in one specific place. Usually it is such a thing, then you can feel that there is some wind coming from an area, and then you feel it like this on the whole body, or you can also stick your hand into the wind flow, or that it on someone or other way is such a more holistic experience where this was such a specific place and I do not think so I have experienced in the same way.

I. Do you want to say that this one is more exciting than the other stimuli you have experienced, or? So, you want to give such a…

R. No, there was not as much power on, so it was not as sensational, or such. It was like not, you just thought "Well, there is a little wind in the hand", or something like that. It was not because you thought about it like that… I would not say it is natural either, but it was also like that, it was just, I was very accepting that it was there.

I. That sounds nice.

R. Yes. Well, but it's also just, I think I would well be able to have it in hand, without… So, I could well have a conversation while I had it in hand without being so disturbed. Where I think if I had a conversation and the others started all of a sudden, I would be like, "Hey, what's up now?" And that was not really the case with this one. Yes.

I. Is there anything you think one could use such a stimulus for? So… both from a technological perspective, but also like this, what is it that it kind of does in you that you kind of can, has this stimulus?

R. May I [indistinct, 35:12]

I. You are welcome to do so.

R. So, now I have tried with a controller, and it is insanely cool, so the gaming experience is so much cooler, because you get such an intuitive feeling of "now something happens that I need to be extra aware of". So in terms of controllers, I think it's really cool. And I really want to buy PlayStation 5, and it has a new Haptic technology, which should be such that it vibrates in certain places in the hand, depending on what you do in the game. So it seems like it's that way, so really integrated a lot. And I think that really means something to the gaming experience. So in that regard, I think. How to use it in other respects? Uh… So the thing about being able to get someone to ae your hand, I think it can somehow be useful. And I do not know if it should be a nursing home or something, but something like that, where you get a feeling that there is someone who is like your fingers or your hand, or… That there is something like care know that there is someone who gives such a feeling that one honors the hands. And as humans, we are very much so preoccupied with our hands, or so, our hands and our face get a lot of space in the brain, so to speak. So if you can somehow stimulate your hands, then it may be that you can be happy. That it can trigger some happiness substances in the brain or something. So I think that might be an option too. Otherwise, it could be such a thing as meditation. So, where you sit in a tailor's position, and then you have your hands placed so that they are over Haptics and then like that in connection, let's now say, you have earmuffs on, and then you hear some bird sounds and such, and then you can hear that there is something, a small animal, in the bush, and if you can at the same time feel that now the leaves are moving, that is, because you get such a feeling of wind blowing in your hands. It could also be a way to give such a 5D experience, rather than "just" listening, but that you also get a feeling that you are actually on your body.

I. Yes.

R. Yes. Then you could, you could use it for such elite athletes, who must be very aware of such at least something. So if you said that I had my hand, and you suddenly saw, then you could feel a little vibration in the little finger, that then you had to react quickly, if you could feel it, or something like that. Or you should do a test where you said "now you get a stimulus on a random finger, and then you have to type in, just like with the other hand, what kind of finger on the first hand", and then you can on a somehow test the coordination of the brain halves. Or that you visually see something, and then you have to get a simulation in hand that matches what you see visually. So, I come up with ideas, and to see them flush it out, it's really fun. You can also, that is, imperment [?, 39:29]… What is it called in Danish? So, if you are such a "numb", or…

I. Yes, exactly, if one has such numbness in the hands, or…

R. Yes, then you can just test "where is it?" and “is it only on physical touch?”, that is, because throughout this experiment, there has been a difference in how physical touch feels and how they feel here. Because this feels more like such a gust of wind with vibrations, where physical touch feels more like such pressure and the feeling of skin to skin. And it can well be two different associations, and you can then possibly test it, by such an imperment , ie numbness in the hand. Other stuff…? I do not know if it can work both ways, but if it could, then instead of having those VR controllers there when you are in VR space, you could have some Haptic down under you, so it's like being able to use your hands without having to have anything in your hands. Yeah, and then it could be insanely cool if it was a keyboard. That is, if one could just sit and write like that in the air. Yes, and that would be really cool, like, now it can see where my hand is, so yes like that so the experiment still works regardless of where my hand is. But if it was a keyboard where it could see what my finger was pressing, but then there was also a response from the Mid-air-haptic machine, then when I pressed down with my index finger on some key in " virtual keyboard space ”, then it would send a vibration back, that now it had felt that I had pressed the key. And you could also use that in games, where the keys instead of being a keyboard would be "go forward" or "shoot" or something like that. But that you then get a response that you have made one print in this virtual space.

I. It makes insanely good sense, yes.

R. Because normally, if you type on a keyboard, then you can feel that there is the normal force that just goes up in the finger, right?

I. Yes, and there are a lot of people who care a lot about which keyboard and which power and all these things.

R. Yeah, I just bought a mechanical keyboard, so I'm… It's cool, yeah. Yes, so such a kind of response to actions. And I really think, with the ones I've tried now, also in the beginning, that it felt that way. That the response time is relatively good. So if it could get even better, such that one could type quickly with the fingers or play fast in a game, then it would be really cool to get such a response. What else could it be used for…? Yeah Al that sounds pretty crap to me, Looks like BT aint for me either. If one could have vibrations of several frequencies at the same time, as such went in over each other, where that one went in thirds and the other went in quarters or something. Then you could also, yes maybe play music by hand, so you both heard the music, but also got the bassline in hand or the guitar solo in hand, or, yes, I do not know, that might be simpler than the guitar solo, but such that you got the music in your hands too. So one not only had an auditory understanding of music, but also had an emotional… or a bodily sensation. And it could provide a greater holistic experience.

I. Cool.

R. I was curious about… So, did you say that it was like, what can you say, ultrasound?

I. It's ultrasound, yes.

R. If I now put the ear down to and you set it to max, or something, would I then get a sore ear?

I. Yes.

R. Okay.

I. So, they… That's why you have headphones on, for example, because you like, well you can hear that there is some interference in it. And if it's a single point, then it's not that loud, but if it's, for example, those random stimuli there, it uses a lot, that is, you can really hear that it comes into play. So… You should not be able to hear it, but you can hear it.

R. No, but it's also just, I think like that with what the hell is it called, those machines in the hospital, where they also send radiation, that is, which hits something.

I. [overlap, indistinct, 45:17]

R. Yes, but also in relation to cancer or such that there is radiation that hits the same point, right? Where that the individual beam is not bad, but then at that point there is like a node, and there I was just curious if it is only at the node that the sound is loud, or if it is also me sitting here next to where the sound is loud.

I. So, I think it gets worse and worse the closer you get to the hub. I do not think you should keep your ear inside the node. And so, I've been sitting next to that device for quite some time, where it's kind of played, because I've documented something like that for it. And I have not had any problems with hearing after that, I can say. So, there are a few things that are also something that you want to stimulate the lips for example, but there you have to take really good care of the eyes, so that you do not like to hit the eyes very much. Because it's probably not that good. Nor the teeth for that matter. So you have to be a little careful about where you kind of stimulate her.

R. Yes. But then, if it's sound, then it's like, well, longitudinal waves…