**Transcription**

**Interview with Dr Abigail Jackson 22.11.2019**

For benefit of the reader. This interview is in front of detailed drawings of the proposed interactive device.

**Researcher:**

So, four jigsaw pieces, interactive. They join together. And that you touch them when the light comes on. Okay, there's gonna be some time element. So, it's curved edges safety. We've got Velcro corners for removing the top but that's just the prototype element.Okay, they're gonna lock in together, so they're gonna be an interactive game, and they're going to be a 123.Yeah, and that's going to be the lights going to come on randomly and the idea is, when they're locked together. That's a coping thing. So, it's a repetitious task, then the child can have if they're in a really busy environment.

**Dr Abigail Jackson:**

Like a fidget spinner.

**Researcher:**

So that's one use but that's not the primary use of the product. It’s going to be for enhancing self efficacy of the child based on based on motor skills. So these can also unlock. And you can attach them to a wall, and you can do a scoring task, where the light comes on, bang, bang. I mean, there's going to be a time limit on each, and have a score at the end. The idea is long term. Not at this point, but potentially this could feed into an app. We're bit reluctant because children with autism tend to have higher screen time which takes up activity. But that's a potential way that you can break down social barriers so they can do like a physical activity task, not around someone that can repair their schools,

**Dr Abigail Jackson:**

Because that's one thing that's the really difficult thing with technology. I'd like to say about increased screen time relationship technology. Technology is that there is a lot of obviously virtual there's a lot of social elements, yes to these things so if they're naturally aligning to that for their social engagement, reducing it isn't going to solve that issue. But that's, I mean, but then if the app is only got basic functions, then it's not going to increase screen time if it doesn't have a gamified element to it, yeah purely a school boarding type thing, then it might not.

**Researcher:**

Yeah, exactly.So, that's I'm not going to go into the engineering behind it and the computer science behind how it's working because I don't think that's a necessary for you and that's what we're not asking you questions. So, I've got a few general autism questions that my colleague, my colleagues have come up with that we just need a general idea just to make sure we're in the right ballpark, but also and then I've got some questions about the device, particularly within the context it's going to be used just to see what you think.

**Dr Abigail Jackson:**

Is it an educational you think in schools or in home,

**Researcher:**

I think this will be for personal use. Okay, so a child could take that with them. Also should really boost that self efficacy. So, first question how can children with autism be best supportive when overwhelmed, overwhelmed by sensory information.

**Dr Abigail Jackson:**

Well, definitely fidget toys.

**Researcher:**

Yeah, so something like this then

**Dr Abigail Jackson:**

Yeah so if you if you think about the senses, it depends what their sensory overload is from. So if it's purely an auditory overload, then you can do that on the local level and they can wear headphones that might alleviate the whole issue. If you're thinking about instead of just doing on a local level you also tried to build up their mechanisms that definitely things like fiddle toys, definitely help so a school would have a variety of different fiddle, toys, and potentially environmental changes so for instance, having a wobble board to put under them when they're sitting on a chair, you can get wobble boards for feet. So it allows them to kind of self stem, so lot of behaviours that are associated with autism more historically is self stemming so if you look at a stereotypical child with autism talked about 20 years ago, they'll be talking about rocking flapping auditory noises, they are all deemed as coping mechanisms so now interventions like what you're talking about, replace some of those.

**Researcher:**

So, like the kind of visual cues are now, enhancing that further. Yes. So, potentially, they could start off doing something like this, with ear defenders on. Yeah.

Okay, so, yeah, so actually is where this.

**Dr Abigail Jackson:**

Yeah. So if you think about it, exactly like that. So if you think about any, any kind of avoidance situation so even conditions like OCD you've got a process of avoiding it that might be your first coping mechanism, but then you have an exposure period, when you're trying to expose yourself to the thing that's difficult, you might have things to help you cope, but you're also then replacing whatever that is with another things. so in this situation the child might start with something like a defenders. I'm just talking about ordinary busy crowds things. And then they might transition, build this in and then they might have periods of time where they're just using this yes not with the defenders but they can put them back on and then eventually transition out. There's lots of I mean it's not clear cut, I wouldn't set up that these are things that currently exists.

**Researcher:**

Do you think we, we've got the lights coming on at the moment. Is there any issue around something lighting up within this population.

**Dr Abigail Jackson:**

So, some may have visual sensory sensitivities, but it's like anything, certainly, I mean you could have the texture of itself might be completely off putting the size it might be off putting. It's so personal that I wouldn't worry about avoiding something like lights. It just made, what you said about the textures because it's so personal in regards to the texture of the device, there are some commonalities. For instance, if I was to go into a school and I was talking about textures, there's probably a handful of things that they'd like, Oh yeah, a lot of our children have issues with x. So some of that could be food textures, certain food textures that they would avoid, but also it's it's things that are I've heard of across the board is things that labels in the back of clothing, anything too tight so when you've got like Velcro or too tight those sorts of things. It could be having buttons and zips and things like that and trousers, they might offer elastic bass trousers, putting labels out. So there's some things that naturally I hear. I hear as a common theme, but even then if you nailed it down to one child is probably

**Researcher:**

Would you actually suggest that we start off them with it as a plain texture?

**Dr Abigail Jackson:**

It’s a tricky one because it depends. If you're thinking about it like I said from one extreme is complete avoidance and the other end is exposure which I think yours is more varying on the end of exposure, you're trying to increase activity, you're trying to allow them to take this out into those environments, rather than instead of those environments that makes sense. So because you're drawing more towards that end my personal opinion is that you don't want to avoid every single thing that could possibly cause an issue, because if they're using this they've probably had a series of events that have happened before they using it. Yeah. So, and also there's some issues between around that so if I talk about technology in general in my research, my specific project now one of my biggest concerns is that if you go to just using things like iPads. The surface is always predictable, there's no 2d 3d element to it so you're, you're losing some things about weight texture spatial awareness all these skills like motor skills, because it's so predictable. So you could do.

**Researcher:**

Eventually, it's a start, you could have a variety of different textures?

**Dr Abigail Jackson:**

Yeah that'd be great texture and that is quite common. So, in terms of fiddle toys, it's quite common. So we all know the fidget spinner that that took off, and obviously in that batch came like a commercial product in the end, it did have its, its heart was in federal toys for kind of sem population, but you can get these blocks, and if you've ever seen one it's a basically cube. On the top there might be a button on the side there might be a switch that you come down on one side, there might be like a joystick thing on the other side they might be almost like bubble wrap. So, in that one design they're targeting lots of different preferences. So it could be that yeah so your basic level might be very clean, very easy to interpret the second level might have more texture involved. The third level might even be something like an asymmetric shape, so they might all join together. Yeah, exactly. In terms of developing their exposure to different things is often quite good if you can build in a progression. My project, obviously we've got the app and now we're taking supplemental materials. So we're increasing their exposure and allowing them to have more peer to peer learning and things like that so that it isn't just isolated. And then what you could do long term as well I suppose is then bring in more sensory stuff.

**Researcher:**

So, initially, it would just be the lights. Yeah, then texture, then potentially each one would make a noise. Yeah, exactly, that's that's what we're trying to build towards it. In terms of like make it more interesting. Yeah. In terms of physical activity element, obviously that's where a lot of your background is, do you think that this in terms of the motor skills element. This will be number one interesting enough for children with autism, but also potentially could have an effect.

**Dr Abigail Jackson:**

Oh, you've already said about the repetition. So, that will help me think. So I think in terms of the repetitive tasks. Yes. Obviously, you need to make sure that there's some sort of competitive or progression within it. So, if it's something that they can naturally feel that they can achieve something more each time this is kind of all children, but that means engagement will be high. If it's too repetitive engagement will still be low, even within this population, you make sense. So if you've got progression within it, and I think you said about changing the speed and things like that, then yes, definitely. I think another thing that that you want to think about which would be quite nice because you said earlier about the social element within an app. It could be that there is another social element if someone else has got the pack. Yes, so you could then have eight on a wall. Yeah, instead of foreign will say things like that I think definitely because then you've also got the social in incentive, as well. So there's two elements to it. Definitely there's progression in terms of either skill increasing time being your time, whatever that might be, but also if you've got the ability to transform it again into a task that you can play with siblings with peers, whatever that might be parents whatever might be. So then you're expanding its uses. If it's too limited, then it's just an engagement issue.

**Researcher:**

That actually brings me on to like actually speaking about the device. More specifically, in terms of the way the pieces fit together. What I thought was interesting earlier was what you're saying about how you could actually change the shape in terms of life, when it's being utilised as a coping thing but also that could be if it was just on a table or something that's what I suppose.

**Dr Abigail Jackson:**

Yeah, yeah.

**Researcher:**

Now what I'd like to do is actually long term bring the actual device when this is being built today actually, so I'd like to bring that back to you as I'm waiting to see what you think about it, but how do you think we would explain this to children?

**Dr Abigail Jackson:**

Yeah, okay. So I think, first of all, don't think of it as a way to explain it just autism I think autistic children always go with age first. So, if you are. If you were to say you were taking this into school environment I know you said that's necessarily what you think is best, but it could also be Yeah, so if you're taking into a school environment. First thing would be to think about, are they in the lower end of the age groups or in the higher end of the age groups that would be your basic thing.

**Researcher:**

Without me prompting you What would you. What age group would you1

see this as with your experience.

**Dr Abigail Jackson:**

I think, If you're seeing this as a coping mechanism.I would say between, I wouldn't say anything younger than seven or eight. Yeah, just from the pure basis of number one, there needs to be an understanding there's got two purposes, and I think there can be some issues around having individual things about ages is an age of all children were like possession is quite an interesting things. Things right now, that's just not just autism itself, but thinking of this as a personal device. I think an older child would you would have to have that conversation with a bit more kind of articulate its uses a bit more. So, an older age group in terms of kind of seven enough would be fine. I wouldn't put a cap on it. Okay, because it's one of those devices that if you need it you need it. Yeah, kind of thing. So, There's no, I would, you know, especially when you're looking at autistic population. The way that autism is you could have a six year old is highly intelligent got great verbal skills, you know he's got very specialist subjects that they're interested in. They could be presenting verbally and intellectually have 6-7 year old obviously, you have the opposite. So in terms of low end I think that's purely to be able to communicate it to uses, if that makes sense. So no top end, I wouldn't say, but to introduce it to a child I think the best way to introduce anything that's a physical object is to allow them to be curious about it, and then learn from what they haven't understood about it and then after on yes if you have this in front of me now and I was a six year old kid seven year old kid or whatever, not to be curious about it so I would stop pushing buttons and playing around with it taking it apart put it back together, as you're doing that I would prompt them oh if you're doing that you could also do this. So I think quite common. There is a misunderstanding that it has to be like, I need to explain this very clearly very slowly whatever autistic children My children are very curious, so anything, you know, that's like this it's very engaging it's colourful it's interactive, all of those sorts of things take a lot of boxes to engage those children. So I think as long as you're. As long as you know what things they need to know. Yeah, I would have it more as like a checklist of what they need to know to get the most out of it and for it to be effective. Yes. Then I would go in and be like, this is, this is what the stars, play around with it also does this also does this, I don't think it would be helpful to be too specific. But the one thing you might want to think about is are you introducing this to the individual child or are you trying to sell, as it were, this to parent, you're selling it to the parent needs, you need to be erring on the side of it helps with this, it can approve this, it can be used in this way, anything that's Multi Purpose is always quite desirable because you're buying one thing that does two things or three things or whatever it might do. And also in the home environment. One thing that's good to kind of pick up on is sibling work, because not you know you can't always assume that the siblings also have a diagnosis of autism Yeah, there might be some barriers there between their relationship and toys like this that are interactive are quite good ways because it's like is actually said earlier about screen time for autistic children if their siblings are doing a lot of role play a lot of pretend play and things like that that they're not that might be a barrier for their relationship so if you're pitching it to the parent, it's got loads of things that tick boxes for parents.

**Researcher:**

Could you see this being used in a school based setting.

**Dr Abigail Jackson:**

Yes. Because, so I think the the motor skill side of it is a bit harder in a school setting just because in its current format. It sounds like it's going to work best if an individual is what you're offering or four puzzle pieces. So that would mean school with 20 kids in a class with need 20 sets, where do you store them Where do you keep them all those sorts of things. But if we're, if we look at its fiddle toy. I don't ask describe it as locating mechanism side of the product. Most schools now in a classroom will have a box, mainly SM schools that may have a box, literally called fiddle toys and they're freely accessible to the child throughout the day, so they can go over to that they can pick things up like the key thing I was telling you about earlier, it might be like a bendy snake that will allow you to something you might be something that soft or hard or, you know, giving them some sensory feedback. So in that sense, I think, if you're pitching it to a school it's got much more probably appeal from the coping mechanism side of it, just from the pure fact that they would need a lot of them for the first for it to be used in the best kind of way in terms of the for the users the motor activity, but even what we're doing now. It could be that if you were selling it as a pack. You could think of having okay for for a home environment, you'd have one device, and they would buy one device use it how they want to, for a school environment you might then build that up into being much more, you know, by X amount. You know, for the school and this will serve this many people, and then you can do group activities because that's, I think that's the best thing about it at the moment is it's a coping mechanism it's a physical activity device but it could also be quite a good social interaction device as well. But that would then nice thing about, you know, how much would actually cost at school,

**Researcher:**

Which would be quite good as well because I suppose that social interaction is one of the barriers and if it's me. That's another example of how

**Dr Abigail Jackson:**

You have got a thing so which was your way you is your way in that isn't actually physically orientated game is your origin or way in that it's a social game, your current device is that is a physical game that can be expanded to bigger groups. Yeah, it's not purely an isolated task, because as soon as you've got, we wouldn't even really you wouldn't even need four per child, because if you had four or 1234. You don't even need another two for that to be a game for two kids because they would both be reaching that's the competitive element, those central two puzzle pieces. So it could be that you know there's, you could pitch it to a school that if you buy a, you can use it with three kids. Yeah, you know, a puzzle pieces serves three children so then they can work out how many they need an eight could be the basic level, because you can still do individual work, you can do paperwork and you can do work in groups of three.

**Researcher:**

We have a demo coming up in a couple of weeks. And, unfortunately, with this current project, we don't have ethical clearance to children, how best would you test the device with general general population

**Dr Abigail Jackson:**

General population. I think, just as it is, I just get their feedback, dude. I think the worst thing you can do is ask them to imagine they were somebody else. I think it's it's really important to understand, put it this way, if the general population, enjoy it and like it, then it's more likely that it's going to be something that's going to be used more broadly, yeah, if it's too specific and doesn't serve a purpose for the general population. And you're limiting your market. Yeah, because the other thing, like I said before the sibling work, you're trying to create social interaction experience between those with and without a diagnosis, if that's the case in the home environment. That's also the case in schools. So think you've got a whole realm of schools that are Sen schools, this would be fine an easy sell, but an extra part of your kind of promotion for it in a mainstream setting is that as a very good activity to use between children with and without diagnosis. That's a really good place to pitch yourself so if you're doing research for the general population and you know it works there. Then you could even be doing with general population children for using get to children the diagnosis. Yeah. So what you're doing is you're fine tuning does it work. Is it engaging starting to think about the usability in terms of size and things like that. You've got to think, if a, if a adult is saying it's too big to carry around or put in my pocket or any of those sorts of things than a child's can have you more difficult. So you can reduce down from some of these things that people say to think, actually, if you know general population is saying it's too big or it's too bright or whatever, then you can assume that that would be the same if not more so for a child face Yeah. In some areas, you know, some cases they prefer things that don't population find it difficult. So, you know, it's not clear cut. But I think in your general population testing you're always looking at usability is engaging, does it work. You know would, would you sit, you know you can ask them if they've got children in their life if their parents when they were children would you suggest this for work with a child. If so, would you suggest it for job so you can ask those question and then that's more about them experiencing it and recommending it, which is exactly what you would be doing in terms of selling it because you would want the parent to like it to buy it for their child, will you don't school to like it by accident child. So, it's very unlikely that you'd ever be selling to someone with a esteemed always be on recommend recommendation type your relationship. So there's a lot to be gained from the general population testing. If you were thinking about your current product if you were to test the effectiveness of this.

**Researcher:**

It's not going to be in terms of physical activity isn't gonna be outcome measure, there's going to be barriers to physical activity. Yeah. How would you set up a study initially.

**Dr Abigail Jackson:**

So, I think, say my studies have been qualitative research so the first thing I would always do is I would go into a school setting or in your case, gather a group of parents if that's where you do think the end goal is to sit and you want to effectively find out from them, what are those barriers. What do they currently have. And why are those things not working. And then you effectively want to go from that although you've already designed it, you've actually had to go from that and say okay, from what you've said in these areas does this type of product fit that bill, then from there you can do some user usability testing. So we've got some question is based around, mainly based around like web based things so like our app for instance, or website design and things like that, but it talks about it's got a list of 10 questions, you know half positive half negative effectively saying, you know, is this easy to use, would you need somebody to show you how to use this, do this, those sorts of questions. They're really good because you can ask both the members of staff that, and you can slightly work. The children have to look at that as well. So there's that longevity. It's the hard one because you would want to do a longitudinal study and you see it being used and things like that which is obviously I haven't even done one of those on my project because it's a lot harder to do. But I think if you're doing, you're effectively, saying, does this speak to your need. Whatever that barrier might be. And if it does speak to your need in its current format. Is it easy to use is engaging what will incentivize the child to use it, you know, are there any things in terms of literally the physical design of it, yeah so qualitative research will allow you to to gather that and then from that he would. Yeah, you'd get him with exactly what you're doing with me now you'd go into a standardised questions and then compare those answers and see whether every person you speak and you've got similar concerns that aren't being met and if they have got similar concerns, then you can go for that. Another thing you can do is online questionnaires, again, talking about barriers and then potentially with some of the designs of this on that and see what people think about it, which is quite good. Fantastic.

**Researcher:**

Well, thank you very much for time. That is everything.

So yeah, thank you very much for your time I'll be in touch.

**Dr Abigail Jackson:**

I look forward to seeing It. Thank you.