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**BRIANNA MONTGOMERY:**

Hello everyone, I will give everyone just an minute to get in and logged on here.

It's just time to go ahead and get started. My name is Breanna Montgomery. The I would like to welcome you to AIR-P, Autism Intervention Research Network on Physical Health. Thank you for joining us today. Because of the number of participants, your audio will be muted. You can submit questions at any point during the presentation during the Q&A feature are the chat box. Please be respectful when communicating in the chat and asking question. Only questions and comments pertaining to the webinar will be addressed. It will be recorded and it will be available on the AIR-P website.

You will also view the presenters slide on the Google drive our website. We provide you to provide feedback on the webinar and also provide suggestions. In interest of time, let us get started.

Next slide please.

Just want to acknowledge the resources. It is my honor to introduce the presenter for today, Laura Crane. Doctor Crane is an associate professor at University College of London in the UK. She is currently the interim director of center for autism education. Laura's research focuses on educational spaces.

To identify for research and co-defining research studies to have a positive or practical impact. She has won several prizes for this work, including the community engagement award in 2018. The Provost price for public engagement 2018 and a rising star engagement award from the UK British Academy 2070. Please join me in welcoming Doctor Laura Crane.

**DR LAURA CRANE:**

Thank you very much for the lovely introduction and also for the invitation to deliver the webinar today. It is a real pleasure to get to speak to you and to share my work as well.

My talk today is evaluating the use of flexible seating for neurotypical and neurodivergent children in an inclusive school. I want to talk about CRAE, where I work. I wanted to start here because I think it gives a really useful background to the flexible seating project that I will be talking about today.

Which is a partnership between the research center at the school. It is really helpful background with the ethos of that work.

At CRAE, our mission, is to conduct really high quality scientific research. But importantly, we strive for all of that work to have a really positive impact on the lives of autistic children, autistic young people and autistic adults.

Feel that the best way to achieve that is to really meaningfully engage with the artistic community. So autistic people themselves but also the broader audience and community such as parents and carers, teachers and other professionals that work with people. Into engage with them with all of the process. Whether that is deciding what the research focused on, how it should be carried out, how we should interpret the findings, to how it should be shared.

That ethos and those values stem from a really important piece of work that was carried out by two of the former directors. Professor Liz and Tony. This work was called 'Of Future Work Together.' And the report was based on, the observation that over the years, there has been this really, quite dramatic rise in the amount of autism research taken place.

This shows the research papers. What you can see is that if we look at the 1970s, 1980s and 1990s into the early 2000's, it was just kind of 100 or two autism research papers being published each year. If you were doing autism research back that, you can pretty much read everything that was being published.

What you can see, in 2000 onwards, this really, really quite dramatic rise. That was due to a number of factors. We have autism vaccine (unknown term), although that is now debunked, there is a lot of interest. There has been much awareness over the use leading to people receiving autism diagnosis. Lots of reasons for that.

What it has led to, if you look at the last year or so, over 6000 autism research articles being published in one year. The really is more knowledge about autism than ever before.

I want to show this to people, what they say is, surely that is a good thing. The more that we learn about autism, the more the research we have, the better this is, the artistic people for their families, and professionals who work with her.

However, what the office found, what you actually take this information to the community, to autistic people, family members and to professionals, you say to them, what impact does all of this have on your day-to-day lives? Or day-to-day practice? People typically say, if I am being honest, not very much. The issue they seem to have, there is a big translational gap between the research taken place and the fact that it has on practice on people's everyday life.

Now, one of the things that the research, but also many other researchers and advocates have been calling for to address that is the participatory or collaborative autism research.

Essentially, what this means, is the shift the when we do research. Traditionally, in autism research, it is the research themselves, you kind of have all of the power. It is the researcher who decides what their research focuses on and how they carry out their research. How we make sense of it.

What you tend to find particularly, in relation to the autism, you have schools and families and autistic people take part in research studies as participant. But they do not really get to have much say in the

research itself.

There has, over the years, towards the committee members. Occasionally, people discussing the results of the research, or giving some feedback on elements of the design. Even in those situations, the power still fundamentally lies with the researcher. They are the ones making the decisions. What I will be talking about today, in a flexible seating project is one example of this, is projects were communities and researchers actually work together for all stages of the research process, design and carry out the research together.

In relation to autism education, I think that this is the way that we have our best chance of achieving sure that the research really because maximum beneficial to schools, families and it to autistic people themselves.

I put on the sled, a screenshot of a piece of work that really shaped my thinking on this topic. It was a paper in the Journal of autism, led by Professor Sarah Parsons. It is written with a group of colleagues as well. This paper, really highlights some tensions between what research is saying, and what educators think. I really recommend reading, it is not a very long article.

It really highlights, the evidence based on what works in terms of autism education is both contentious and equivocal. There is a lack of clear guidance how to support autistic people in schools. I think schools can get quite frustrated by how lots of advice they could get, could be quite contradictory.

The result of that, cools tend to be popular but not always evidence-based approaches. What researchers say, the a way to address this is to have more methodological research. Work, with a really high degree of experimental control that will then get translated for education professionals in a really user-friendly way.

There have been attempts to do that, it is one example, that becomes, in particular, text or communication. It is augmented and alternative communication. It is essentially involved, this is a very simplified description.

For example, using picture cards that could be exchanged by the children for something more tangible. It might be supporting the child's learning. If they get a picture to the great, the verbalize that. It gradually builds up.

What the researchers wanted to do was to evaluate the use of (unknown term) in schools. What they did was they had a team of consultants, specialist Inpex, who came into the school and implemented that. What the researchers so, was some really quite positive effects, children are seeing the gains of what they are expected. Everything was going really well.

What happened, they took the consultants out of the school. At the offered teachers to implement these. What they found was Emma the student -- the positive effects kind of cease. (Indiscernible) they are not implementing this intervention as they are supposed to. That is why it is not working.

What they did not really consider as much, maybe it was the intervention itself that was the issue. Maybe it was just an intervention that was not designed to fit into the busy and messy and complex reality at school.

It was an intervention that teachers were so overwhelmed with the complexity of it and the demands on them that they just will not be able to implement it.

Indeed, when you go to people, working in schools and you ask them what they want from research, particularly in intervention research, what they call for is approaches that are already easy to implement and also really easy to adjust to their specific school context.

They had to implement exactly as they were told that. But also really importantly, what school staff wants. It to be able to take something and fitted to the needs of their particular group of young people that they are working with. This is this tension here because research often does not allow for flexibility and adaptation. When get implemented and evaluated. That is exactly what schools are telling us that they want and they need.

What is Sarah Parsons did and her colleagues argued, is you got to start meeting in the middle. You need to design a really high quality research studies. But they have to fit into the school context. What they argued, I completely agree with this, the best way we are going to achieve that is through research partnerships with schools.

I kind of put on this slide here. Just a link to one of the ways that we, hopefully achieve this at the research center. It is the Pan London autism schools network research. It is a collective of autism special schools. Schools were exclusively for artistic young people.

A lot of this young people, that are excluded from autism research study because the needs, do not fit into the traditional research studies. What the network do is it brings together members of school staff and together with autism research. What the schools do, if they tell this was in collaboration with one of our schools.

Priors court is a school for people with quite complex needs, as well as the diagnosis. They have a range of other diagnoses as well. Many have intellectual disability, and many need 24 hour care and support.

It is thought that the needs of these young people are met in this more specialist provision, services and support as supposed to be at the residential school.

And they have support in the residential settings, in the evenings are 24 hour care. I wanted to mention this one in particular, because this is a really engaged school, really engage in research. Really few researchers to go to the school because often the young people there do not inclusion criteria. Their IQs might not be in the typical range, not able to engage with search interviews. They may not have spoken language that they want to take part in interviews with researchers, for example.

The kind of question here, arises how this is caused? Can identify approaches around the high quality evidence when researchers are slightly reluctant to work. This is just another example that collaboration can be really effective. Collaboration between researchers, expertise of designing a search study, but also schools and I think particularly in this case, with staff really bringing expert knowledge of this particular group of young people.

This particular project, it was the school themselves that came up with the idea. It is our major topic within education in general. But I think within the context of the school, it is particularly important when, not many people confidently speak the language of the people.

We designed the study to try to support the voices of people and to really understand the wants and needs. It is a collaboration between myself, as an academic researcher and (unknown name) who was a particular as the school. To really lead this brilliant program research, which involved taking everything on the literature and presenting it. They will start to identify what might work best for that pupil. And what might feet best in the city.

What the staff came up with is hybrid of lots of different approaches, which then none of them want to develop and to implement across lots of different classes of school. She worked with the teachers to get training materials for them. Social stories for your people to help them understand what the rules were.

Doing interviews with staff but also observations to see how the rules are working and facilitating voices of the young people.

The results of this have been published. They essentially showed that it was a promising method. What was really nice in this study, we publish it in an academic journal. The school gets together, this is what the snapshots. They put together a really lovely accessible summary. The training materials, teachers and the social stories have all been made available.

If someone is working within the school, wants to implement, they can literally take everything they have created and implemented and adapted to their particular context.

I wanted to mention, that is (unknown term), that is one example of how collaboration in autism education research can be so important. Particularly, with the grief that can often be quite hard to include for a variety of reasons in research studies.

What I will move on to now, is a different project. One with a very similar ethos, an approach to that that you did. This is a partnership that we had with the school, Mayflower primary school. This is a new piece of art, still analyzing the data.

So, I mentioned earlier, it focuses exclusively on specialist schools for autistic young people. Mayflower fall slightly outside of this network. It has been up after collaboration with an inclusive mainstream school. This is a school for pupils, both who are typical and do not have any diagnosis as well as a range of different neurodivergent is including many people who are autistic.

This school really welcomes all learners and aims to meet the needs of all of them.

The approach of the school is really about creating fully inclusive learning environments. Rather than focusing purely on getting specialist support for learners for specific diagnosis.

The head of collusion, I worked on this project, is really phenomenal.

It is remarkable as to when you go to Mayflower elementary, you cannot identify who are the learners with additional needs are. They are not just attached to one particular job for additional need. The school uses a system of mixed stability learning orders. It is not the case, for children who are able, but different children, different levels can support one another's learning.

The teaching methods themselves are very inclusive and very accessible for wide range of learners. Importantly, as a result, that children are really happy and really thrived. The staff at the school are all complicit. They always want to keep striving to make this even more inclusive than it is.

The thing that the school was particularly interested in, was the idea of seating.

In the UK, as in many of the places around the world, there is some children, particularly children who are on the neurodivergent doing good city. This is commonly assessed and especially for children who has autism. Folded or very still arms, making sure that they sit in an assigned place in the classroom.

The underlying assumption here is it is all about the children fitting in the norm in conforming with the norm.

It is not really about it, except of the fact that some children, this can actually be really difficult.

It does not align with the ethos of Mayflower school. Which is all about inclusion., Whether we can make adaptations to meet the needs of all learners. The ethos of the school, is a primary school which means that the children from the age of four, lots available. Rather than just offering individual adaptations to a small group of children with additional needs, it is perhaps good, inclusive approaches might better meet the needs.

It is important to note that some adaptations are completely outside the control of the school. For example, it is not always possible to change the structure of the building, sometimes it is really expensive and sometimes it is just impossible for that kind of design perspective.

The idea reflects on seating, did seem to be an option for the school. This was something that was recommended, for some children already by occupational therapists who are working within the school. Also, rather be the assistant head of the school. I went on a visit, (unknown term).

When I went to visit to see some really good process in the ASD schools in New York, got to see the use of flexible seating. I started to wonder whether these things might be able to actually benefit

everyone? It was not just, you know, did they work. How come we actually create an evidence-based? Not just for the school themselves but also in case, other schools are thinking of adopting this kind of approach.

(unknown name) have studied for her Masters that I work at and we got to know each other through there. I went and I visited the school, she came and spoke about her work, how her research. She said that she has this idea that she wanted to implement the seeds, and wanted some support to carry out the research.

I love the school, and I love working. I need it them to say yes. This is how this project kind of got started.

What is flexible seating, exactly? The definition of flexible seating is that it involves using a range of seating options in the classroom. But also, typically alongside less rigid rules about moving around in the classroom. Also, Lester reliance on the seating plan or assigned seating.

Does it work? One of the first things we did is go out and review the literature on this topic. And I got to see a huge thank you, to Erin, who has been working at the research center on the past year and really did a huge amount of work on this project, eluding a very detailed view of the literature.

What this review highlighted, was that the research was focused on flexible seating as a specific adaptation for neurodivergent children, particularly, autistic children. Not very much on the use of flexible seating as a whole school, inclusive approach.

In terms of the research that has been done, the finding was tended to be a little bit mix. This has been attributed to a variety of factors, but typically, it is a thought that different seeds may bear and ineffectiveness.

Children may respond to different seeds as well. It can be quite hard to make sense of how effective they are for that reason.

One thing it is important to measure, while the research does not always show positive effects of flexible seating, detrimental effects do not seem to have been reported. It is really important to emphasize this. In a lot of autism into, harms do not often get reported. What we have seen in the literature so far, we have not really seen evidence about being detrimental in any way.

Importantly, what we do know about flexible seating, tends to come from doing experimental work and sometimes talking to teachers that actually, that are less known about what children themselves think about flexible seating. That is crucially important.

So, what did we aim to do? Our aim was to conduct a case study of flexible seating in Mayflower primary school. One specific school.

Mayflower had decided to start introducing flexible seating to the children in a gradual way and I will



talk about how shortly.

What we wanted to do was to seek two things: first, we wanted to see staff reviews on if and how flexible seating may have influence teaching to their brain and provision of educational schools in the classroom.

We are keen and trying to identify from the teachers perspective, the opportunities and challenges that have at flexible seating. It is really important because, it will never ever work if all of the staff at the school, trying to deliver the lesson plan.

We really needed to say, that the teachers are part of. Both Nero typical in neurodivergent people. Around what they liked and they did not like about flexible seating. (Indiscernible)

Actually, we are able to get a number of researchers, they had quite different ideas or different caps about what a study of this nature might look like. So, the research members of the team, were quite keen of an experimental study with a high level of control. Perhaps looking when they implement the city. And getting pre-and post measures, do we see measurable changes in things like, concentration or attention or other kind of similar variables.

I think while the school found that idea to be really interesting, fundamentally, what they felt was, providing interest and information, it was not really a key thing that they wanted to know about. What the first step was if the staff at people are on board with it. Do they think it is acceptable and what did they see as the positive and negative of it.

It was school very much driving the direction of this research and making sure that what we decided to do really met their needs. I think, unfortunately, some autism education research does not always have the practical relevance.

It is really important for us to try to get that right.

How did we go about it? As I said, it was very much in collaboration for supper we have a team of researchers at the research center, working very closely with the school, and particularly with Heather, who is the assistant head.

It was not also just with staff at the school that we had collaboration. Hepa, who is a beacon of excellence, set up this nominal chair committee. A group of children at the school, whose role was to help with the implementation of flexible seating. One of their key roles, for example, make decisions about which chairs to order into the school. This was in gradual basis in consultation with the chair committee around what they thought would be the most useful chair.

Just to give you a flavor of different chairs that were used. There were wobble cushion, floor desks, standing desks, sketching desk, sensory cushion, floor chair, there was also a wobble stool, a floor rocker and also a ball chair. Although the ball chair did not last very long. There was a huge disaster and spent all of this money on baseball chairs and then children were bursting them with a pencil.



The ball chairs were one of the first that was discarded because it was too expensive and that chair committee agreed with the fact that he was not up practical to have it at school. We did not see it very much, the boat chair.

We also had a rocking chair and the regular classroom chair. In terms of collecting data on how everything works, it was data collection for 3 to 4 days. This was conducted by Heather, who is on the left along with a run in Taylor. They went into the school, we had every child in the school involved with the studies. We collected data from 315 pupils, 57 of whom were neurodivergent.

We work really closely with the school to identify the very best way to elicit the young people's views on what they thought about the chairs. We developed some accessible survey. What I mean with that, we work with the school to make sure that when we were asking them questions on their thoughts on chairs, they had all of the kind of educational schools that they would normally have in the classroom. Things like work back to help them generate descriptions and so on available to them. To support them with answering the questions that we were posing to.

We also tried to design activities that were very closely in line with the things that the children would be typically exposed within the day-to-day activities at school. In the picture on the slide here, the children have taken part in the activity for the head teacher for the day.

They work in groups, which is something that they are used to doing, in terms of working collaboratively. They were going to be a teacher and that they were, the set of boundary, the rules. They would get the desired teachers that would go into their classroom. -- Chair

They have to keep tables in the room as well and keep the number of children. The idea is working collaboratively, make some decisions and present their ideas, both to the researcher and also to other people.

I think, the other thing to measure, the school really emphasized was the need for the research team, it has to be embedded within the school. It is not just to collect data, Aaron and Taylor, they were with the playground with the children, they were in the classroom. They were real part of the school community to help build that trust and to reduce any anxiety for the children as well.

We collected lots of data through their methods. We are still analyzing it at the moment. I can give you snapshots of some of the initial findings. Although we are analyzing differences between the neurotypical and neurodivergent children, what we've found, was first of all, children had clear preferences for certain chairs over other chairs.

Particular, the rocking chair and noble schools were rated very positively. The church that are facilitating movement in the classroom. We also had some quality to the data, trying to identify the factors most important to them. The kind of things that came up were things like concentration, the extent to which seating option help them manage any potential distraction from the environment.

Movement, which is really important, whether the wobbling really found it helpful. And then comport is a really big thing for the children. They felt that it was these things that really facilitate learning for them.

As I mentioned, we also collected data from the teachers. It was the collaboration with the school that was really critical here. Teachers are really busy and, just the teaching capacity but they are very busy. It is really important for us that the school offered them some kind of time in one of their training days, set aside for them to be able to answer the survey that we designed for them if they still wish.

I also worked with small group to make sure it made sense, and things like this.

What we found from this was that, we had 33 staff across the school who took part. They were overwhelmingly positive around flexible seating. 30/33, would recommend it to other schools. The three, they were not sure that they would recommend it to other schools.

If they did feel, it would be helpful, it is like a strategy across all age groups, and that is something to targeted to particular people.

Just like the children, the teachers have really clear preferences. They particularly like the same chairs that the children pick, it was like the rocking chair and wobble stools as well. Very similar results to the children.

Some other key snapshots, this is not comprehensive, we have a huge amount of data from the participants. It was not difficult to adjust the teaching too, it did not make managing behavior challenges. They felt that it made teaching and supporting pupils easier. Although we are not able to verify any of the potential benefits, I will just put on the slide, for you areas that the chairs have the people, things like engagement behavior, comfort, collaboration, for example.

Or staff that felt that people get regard behavior, comfort, mood, motivation and peer-to-peer collaboration improved upon the introduction of flexible seating.

I think it is really important to reflect very critically on findings that we presented today. In a range of different ways. Will it work in all schools? The school that we use this in, is an exceptionally inclusive school. They were very creative, they try to create different methods and to meet the needs of all students.

I do wonder, it was a more traditional and perhaps less inclusive schools who is less open to trying new methods. For example, you can just put different chairs in the classroom and they would benefit everyone. I think it really does need to be embedded with then that water ethos.

Need to think about slightly older children as well. Children between the ages of 4 to 11. I always wonder about what happens to these children is brilliantly inclusive of this environment when they go off to high school. It is a very different experience and much less inclusive in some ways. It would be kind of things be helpful?

When I mentioned about the chest, if you remember the picture from earlier, they are not that different from traditional stalls. They do tend to find, the some other religion Justin (unknown term). It might not be too much of an adaptation.

The other thing that I think it is important, this is not the only sensory adaptation that the school uses. It might not be the biggest. That is what makes the children feel most comfortable. Those are all the things that we are reflecting on as we finish analyzing the data.

Just before I finish up, I will reflect on the results. I also wanted to reflect a little bit on the collaborative aspect of the research. I put a couple of quotes here from some of the staff members from the school just talking about how much they enjoyed being part of the project like this. And it is more forward thinking, they like the fact that it was kind of no expectations for it to work, for it to be successful. But it was really fun to keep children involved in, is really nice to see.

From our perspective as well, from the research perspective, I can wholeheartedly say that the project was so much better from having the input of the school. In helping us think about what to focus on the study would be, how can we design it to be inclusive for the children, how we can design it so teachers will buy into it as well.

This collaborative effort did make this the success it was.

Just to briefly measure, we have partnership with this school as well. Center adaptation, we are about to start projects for these.

Just to finish with some concluding messages, I think, first of all, I emphasized, again, if you want to achieve clinical autism education, it is working with partnership with every stage of the process. I think, it is collaborative and participatory approach. Like the one we used with mayflower. Hopefully all will have a direct benefit with the education experiences of autistic children and young people.

And in relation to flexible seating in particular, I think it is important to mention that, it does seem to be, from the mutual finding, the promising model to meeting the needs of young people not just for neurodivergent but those for our neurotypical. I think it needs to be part of a broader program of inclusive practice.

Whatever a school decides, it is really important to get kind of all different state involved, and by this, I mean staff as well as the people. Making sure that any decisions that could be implemented, are going to be informed who are affected. I will finish up there. I forgot my flight to say thank you to the wonderful people that I work with on this project. I will verbally say a big thank you to them. I shall end there.

**BRIANNA MONTGOMERY:**

Wow. What a wonderful presentation. Thank you so much. We do have time for some question. If anybody in the chat or Q and A want to type anything, that would be great.

We want to go and, we want to go back to the last couple of sites, we want to promote our next webinar, presented by Doctor Monique Botha, talking about relevance of the Minority Stress Model. And what that looks like for neurodivergent individuals.

The registration, I can also post a link on the chat. I do have a question.

I know you mentioned what it looks like for high schoolers, US work with grade school which is the elementary school. And also, middle school. 11, 12, 13, 14. My siblings go to a school that tried to integrate some of this. I think my mother mentioned that they have turned the couch, tables, they have candles on the table. When they are really, they are doing downtime there. I was wondering if that could be implemented into high school.

DR LAURA CRANE:

Absolutely. (unknown name) has done some lovely research into looking at sensory rooms that could be implemented. Just quiet space that people can go and destress and to chill out and regulate. It is really interesting, a lot of schools implement sensory adaptations like this. We do not have a very strong evidence around how effective they are. What makes a good sensory space. what makes it acceptable to young people. Feasible for teachers and so on. As these kinds of things get implemented, seeing what is helpful, what is not helpful and using that to make recommendations for future practice. Which is really key.

It is brilliant that these things happen but we got to start documenting and evaluating them.

BRIANNA MONTGOMERY:

Absolutely. I am sure that is the answer the gap between the system of grade school and high school. I guess,, I do not know if you have the answer to it. I noticed, the US, urgency and need for school it has been increase. There is not enough demand or individuals that reach that demand.

DR LAURA CRANE:

I think that is a really good question. There has been some work done in the UK about maximizing the use of teaching aids or teaching assistants as they are known in the UK.

I know that ill a lot of places, the model that tends to be used, they get assigned to a particular chart or special education needs and provide one-to-one support with them a lot of the time. That can be really helpful in some ways but also not as helpful in other ways. Sometimes it can lead to stigma by having someone with you all the time and identifying you as being someone who has additional needs or learning needs.

And maximizing the impact in the UK has really been looking at, we know that there is not enough teaching is. We know that it is hard to meet that demand. How can we actually use it most effectively within the school setting. I think at Mayflower school, the do a very very good job of that. Having the teaching aid work with groups of young people as opposed to always working with one particular child.

Having them kind of support with the general ethos of the classroom. I am not an expert in that area, I know that is really brilliant work that has been done around that topic.

BRIANNA MONTGOMERY:

Absolutely. Thank you. Hopefully we can continue working in that direction. Again, it is a pleasure to have you. The recording will be available, you can either watch it again or for the people who did not have the opportunity to. Thank you everyone. Have a great day or night. (Laughs)

Live captioning by Ai-Media