Pan London Autism Schools Network-Research (PLASN-R)

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UCL Institute of Education

The **Pan London Autism Schools Network (PLASN)** is a network of schools from across London that all specialise in **autism**. The PLASN-Research group is a subgroup of **PLASN** that provides links between **schools** and autism **researchers** (from a range of **universities**). This research-practice link enables us to identify topics for research that have a **positive impact** on the educational experiences of autistic children and young people. By working collaboratively, we ensure that schools adopt **evidence-based practice**.

In this **fourth** issue of the PLASN-Research newsletter, members share the latest findings from some of the research studies they are currently working on....

Motivated learning in autistic children with complex needs

How can we best motivate learning in autistic children with complex needs? Rewards play a critical role in motivating children's learning. Whether in the form of simple praise, such as a gold star, a chocolate treat or the promise of time to play in the garden, parents and teachers constantly rely on different **strategies to motivate** their children.

In the context of autism, rewards also play a critical role in interventions that seek to promote **social-communication** (e.g., language and conversation) and broader **adaptive skills** (e.g., self-care and daily living). Despite their critical role in motivating learning, however, very little is known about whether learning is motivated by the same kinds of rewards in autistic and non-autistic children, particularly when considering children with **complex needs**. Using newly developed touchscreen-based 'games' and a novel reward dispenser, we recently examined basic reward learning processes in 30 autistic children (4 -15 years old) who were minimally verbal and had significant learning difficulties. They were encouraged to obtain various types of rewards (e.g., pictures, music and video clips, stickers) by pressing different cues on a screen. Contrary to what might be expected, we found that autistic children worked harder to engage with pictures depicting **social events** (e.g. smiling faces, children playing) than non-social examples (e.g. landscapes, trains, abstract images).

A **parent survey** also indicated few differences between the extent to which parents of autistic and non-autistic children relied on social rewards to motivate behaviour (e.g., praise, high fives hand gestures, cuddles etc.,). When rating the motivational value of different toys and play activities, however, parents of autistic children rated action figures and dolls as less appealing and sensory related play (e.g., water, sand, messy play) as more appealing for their children than parents of non-autistic children.

We also examined how **rewards** function as motivators during different games and here we found both similarities and differences between autistic and non-autistic children. In terms of similarities, autistic children demonstrated typical 'reward devaluation'. Specifically, if they first chose between watching a short **Peppa Pig™** or **Minions™** cartoon and then watched Peppa Pig over and over again, they developed a typical

preference for the Minions video because Peppa Pig had now become less attractive. This is important, because we might expect that autistic children would actually prefer repeating rewards due to an 'insistence on sameness', listed as a core feature of autism. In terms of differences, we found that autistic children do not demonstrate '**blocking**', which is easier to describe with a real-life example than in terms of our blocking game. You have learned drinking milk gives you reflux. Since **milk** is good for you, however, you occasionally have a glass with a cookie. If you have reflux after such an indulgence, you would typically not associate it with having eaten the **cookie** as your knowledge that milk gives you reflux 'blocks' you from learning that cookies might do the same.

In our blocking game, autistic children demonstrated the opposite effect. Rather than 'blocking' the learning of new associations, **familiar associations** appeared to facilitate learning. Since these findings have important practical implications, we are now seeking funding to explore reward learning processes in more detail in children with complex needs.

Anna Lambrechts & Dr Sebastian Gaigg,
Researchers at City, University of London

Minions ™ Universal Studios ©

Innovative Curriculum Design

A project brief that began with a narrow focus on tailoring The Grove school's **Relationships and Sex Education** (RSE) curriculum to the needs of our autistic learners soon broadened into reconsidering the school's **Personal, Social and Health Education** (PSHE) offer.

We realised we needed RSE to be underpinned by a well rationalised programme pervading the wider opportunities in school life, whilst also taking in spiritual, moral, social and cultural development (SMSC) opportunities. In a sense, a lot of the activity that might be considered incidental outside of a specialist setting (e.g. developing and establishing friendships) is central to learning the knowledge, skills and attributes for having healthy, fulfilling relationships & sexual health.

We used local data - the **Haringey** Joint Strategic Needs Assessment (https://www.haringey.gov.uk/social-care-and-health/health/joint-strategic-needs-assessment-jsna) and priorities identified in consultation with staff and with parents - to determine the weighting of the PSHE units so that, ultimately, we would be delivering something well matched to the needs of our **local community**.

Going through this process over 12 weeks, staff became more confident and took ownership of tailoring the content to deliver a comprehensive programme matched to the needs of individual students. We were really proud of the commendation we received from our **Ofsted** (HMI) Inspector who praised our innovative and collaborative approach to curriculum design.

***Emma Watford**, R&D Lead, The Grove School*

Light and Mood Project

A research study at Prior's Court School has been exploring the effect of **light colour change** on the **mood** and **behaviour** of autistic children and young people (between 8 – 16 years old) in a learning environment.

Working with a cohort of nine autistic students (1 female: 8 males) subtle changes in behaviour with regards to concentration and instinctive reactions were observed. This was investigated by offering a box of stimulating toys that the student was allowed to explore for up to eight minutes whilst the light changes were taking place. A lighting system consisting of three different LED lights were situated in three areas of the room. The bulbs were connected to an app and the light was changed on a smartphone. The camera was looking at **facial expressions** of the young people that could be analysed after.

This pilot study was useful to explore how sensitive these students were in response to subtle changes in light through small changes in their behaviour. The behaviours focused on were (i) facial expressions, (ii) sight, (iii) body posture, (iv) communication (i.e., language) and (v) subtle physical reactions.

All the possible significant responses were identified and quantified by measuring number of times observed and duration. Initial findings indicate that some students were more **immersed** in the activity during green light compared to red light and that engagement in an activity was similar for both yellow and green light.

In future, this study further seeks to investigate whether light enhances **concentration levels** and therefore learning. It was also suggested there may have been enough subtle behaviour change to potentially use light to alleviate behaviours that challenge by creating a more soothing environment.

***Sue Piper**, Headteacher, Prior's Court School*

To 'tech' or not to 'tech'

Use of technology (Alternative Augmentative Communication - AAC) with children with severe communication difficulties.

Technology and communication is vast, and growing fast, but research in this area and supporting **evidence** of these technologies, is limited. Tablets are often used for multiple purposes at home and school but with a recognition of the significant challenges that this can bring, including: not using **apps** as intended or perseverating on YouTube. Reviewing 17 published studies (including systematic reviews and meta-analyses) into the efficacy and effectiveness of such approaches reveals some **limitations** with the research, such as small sample sizes and a narrow focus (e.g., limited to requesting technology at snack time rather than participating in life).

Research identifies the potential for technology to help, but success is likely dependant on child factors, their **communication preference** (tech/PECS/sign), and perhaps a dedicated device. Deciding on Augmentative and Alternative Communication (AAC) should be underpinned by a quality assessment of the child and based on their needs. Janet Light's (1989; Light & McNaughton, 2014) model of communicative competence is recommended. As important as the AAC itself is, the **instructional approach** to be used and the focus should be on ensuring maintenance, generalisation and total communication both at home and school.

Full **reference list** and resources available on request: penny.williams@gstt.nhs.uk.

***Dr Penny Williams**, Consultant Speech & Language Therapist, Evelina London Children's Hospital*

Who's involved..?

PLASN-R School Members

The Grove School
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College Park School
Central London

Hatton School
North London

Eagle House School
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Sybil ELgar School
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Durants School
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Prior's Court School
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TreeHouse School
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Springhallow School
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Russet House School
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Dr Catherine Carroll

Catherine is a Senior Research Officer in Education & Psychology at the UCL Centre for Inclusive Education, UCL Institute of Education.

Prof Patricia Howlin

Patricia is Professor of Clinical Child Psychology at the Institute of Psychiatry, in autism and other developmental conditions.

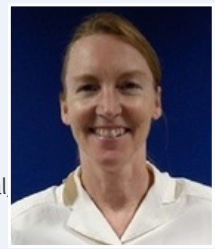
Dr Sebastian Gaigg

Seb is a Senior Lecturer in the Autism Research Group based in the Department of Psychology at City University London.

Dr Vicky Slonims

Vicky is a Senior Consultant Speech & Language Therapist at the Newcomen Centre & Honorary Senior Lecturer at King's College London.

Dr Penny Williams



Penny is a Consultant Speech & Language Therapist at Evelina London Children's Hospital receiving her PhD at King's College London.

This newsletter was produced by the Centre for Research in Autism and Education (CRAE), UCL Institute of Education, in collaboration with PLASN-R members.