TRR 8: Can a structured relaxation programme increase pupil engagement?

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This research paper details the mindfulness intervention work completed within Red Marsh School to support and engage young people with Autism Spectrum Conditions and sensory needs. The paper uses a case study approach to consider the influence that a regular relaxation intervention delivered within a multi-sensory 4D learning zone had on a small group of learners. It focuses on their engagement in learning.

Context

Red Marsh School is a 2-19 special education facility for 82 pupils with severe or profound and multiple learning difficulties, many of whom have additional complex learning and medical needs. Within the school there are currently 26 pupils with a diagnosis of Autistic Spectrum Disorder (ASD). A 4D learning zone was recently installed to provide immersive learning experiences.

Focus

Analysis of the pupils within a primary aged class showed that of the four pupils with a diagnosis of ASD, all displayed some sensory differences. Two pupils were already receiving regular support to meet their sensory needs through a sensory diet intervention. For the two pupils displaying some sensory needs and not yet receiving specialist support. It was decided to introduce a relaxation programme using our new 4D resource areas that would support some of these pupils' sensory needs and emotional wellbeing.

Research Questions

1. Can regular relaxation sessions embedded into the school day improve the engagement of targeted pupils in a specific activity?
2. Can a regular relaxation session teach pupils to show mindfulness qualities?
3. Can a 4D room be used to focus pupils' on the present moment?
4. Does a regular relaxation programme support pupils' readiness to learn?

What are Autistic Spectrum Conditions?

Autism Spectrum Disorders (ASD) or Autism Spectrum Conditions (ASC) are the terms used to describe neurodevelopmental conditions shown through differences in social interaction and communication and rigid and repetitive ways of thinking and behaving (World Health Organisation, 1992). Although young people with ASD also exhibit sensory atypicalities there is large variation in way these are displayed, for example, a child over-responsive to vestibular input may avoid activities involving swinging or spinning, actively avoiding them or showing anxiety when exposed to them. In contrast, a child who is under-responsive to this sensory input craves these movements and it may

help them to 'wake up' when they have intense bursts of swinging or spinning movements. Schaff. et al (2012) estimate that between 80 and 90% of young people with ASD have difficulty processing sensory information and exhibit sensory challenges.

Vermeleun (in Jones and Hurley, 2014) emphasises the need to take more account of the emotional wellbeing and happiness as outcomes for people with ASD, while Smith (2015) suggests that for young people with ASD, their emotional state often captures the essence of the day and that young people who are confused, scared and anxious are not ready to focus on their learning. This research confirms my personal observations as a teacher highlighting the importance and need to support pupils' to improve their self-regulation, emotional wellbeing and readiness to learn.

By supporting the sensory needs of young people with ASD, it has been found that pupils can develop a heightened sense of self and improve their emotional wellbeing (autismeducationtrust.co.uk). It is suggested by Smith (2014) that using CARES (choice and control, access and opportunity, relationships, emotional wellbeing and skills and competencies) to guide provision is vital in supporting the needs of young people. Without appropriate control, opportunity, purposeful and effective relationships and emotional support, how can we expect a child or young person to be ready to learn?

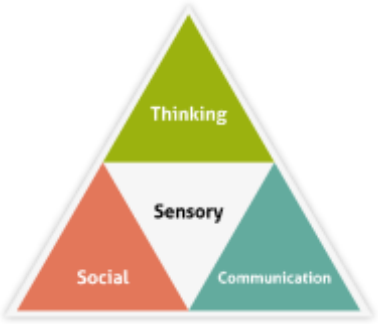


Figure 1: Autism Spectrum Disorder: Triad of impairment.

A question of engagement

Engagement is the single best predictor of successful learning for children with learning disabilities (Lovannone et al, 2003). Without engagement there is no deep learning (Hargreaves, 2008), effective teaching, meaningful outcome, real attainment or quality progress (Carpenter, 2010). Sustainable learning can only occur when there is meaningful engagement. The process of engagement is a journey which connects a child and their environment to enable learning and achievement.

Figure 2: Indicators for engagement.

The engagement profile and scale is a classroom tool devised by the Specialist schools and Academies Trust (Carpenter and Egerton, 2011). It allows educators to focus on the child's engagement and is a strategy used to allow them to reflect and create meaningful personalised pathways.

Engagement is multi-dimensional and encompasses awareness, curiosity, investigation, discovery, anticipation, persistence and initiation. The Engagement scale tracks how adaptations to the activity effect the child's engagement, which over time allows success of interventions to be monitored.

The engagement scale can then be used to generate an engagement score by combining scores from each of the engagement indicators. This can be used to assess the impact of any adaptations made.

ENGAGEMENT SCALE

Mark TOTAL engagement score from sheet overleaf:

No Focus			Emerging / fleeting						Partly sustained								Mostly sustained								Fully sustained
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28

Figure 3 : Engagement Scale

Research Process

LOOKING FOR COMMON THEMES

- Teaching staff were asked to describe what readiness to learn is, and what it looks like in our school setting. This information was analysed to identify a common theme.

BEFORE OBSERVATIONS

- The pupils were observed in an activity they find highly motivating and ways they demonstrate this engagement were noted. This was used to inform the development of the intervention, especially to select movements which focus on addressing their 'sensory seeking' behaviours.
- A relaxation programme was developed and a set sequence and 'script' was created to follow during this routine programme.
- The 4D immersive learning zone was selected to run the intervention as this allows complete control of lights, music and visuals. It was anticipated that this would help to ensure predictability which would aid the pupils' in understanding the routine and expectations within the session. It would also allow the relaxation session to be distraction free as there would be no other pupils using the room. It was hoped that this would reduce any anxiety the pupils may have.

DATA COLLECTION

- Working with familiar staff, pupils spent a 15 minute period in the 4D immersive learning space each morning following the structured relaxation programme.
- The intervention was based around activities which would provide vestibular and proprioceptive input such as deep pressure and rocking. The pupils were supported to receive input in one minute bursts through the set sequence of activities within an environment where the visuals, lighting and music were consistent throughout each session. Consistent language was used by staff to say when each movement would end and a new one would begin.
- Pupils returned to their classroom and completed a 10 minute fine motor activity where they were required to imitate an adult making vertical, horizontal and circular strokes.
- A further 'baseline' was gathered 6 weeks after the end of the initial intervention period to see whether these sessions had any lasting impact on pupils' engagement within a specific fine motor task.

EVALUATING IMPACT RE-RUN THE INTERVENTION

- The intervention was delivered for a further week, following the same routine of 15 minutes in the 4D room, followed by 10 minutes in the classroom completing the same fine motor task.

Findings

Teacher perspectives

Teachers worked in small groups during a staff meeting to share their views to the following questions, recording their results in bullet point format on post it notes:

What is readiness to learn?

Figure 4: Red Marsh teacher responses 'What is readiness to learn?'

Many of the responses from teachers focussed on ensuring sensory needs are met, tolerating the activity or environment, being calm and displaying 'learn to learn' behaviours such as sitting and being attentive. Teachers also provided detailed classroom strategies that support pupils to be ready to learn, such as the use of timetables and ensuring pupils' basic needs are met.

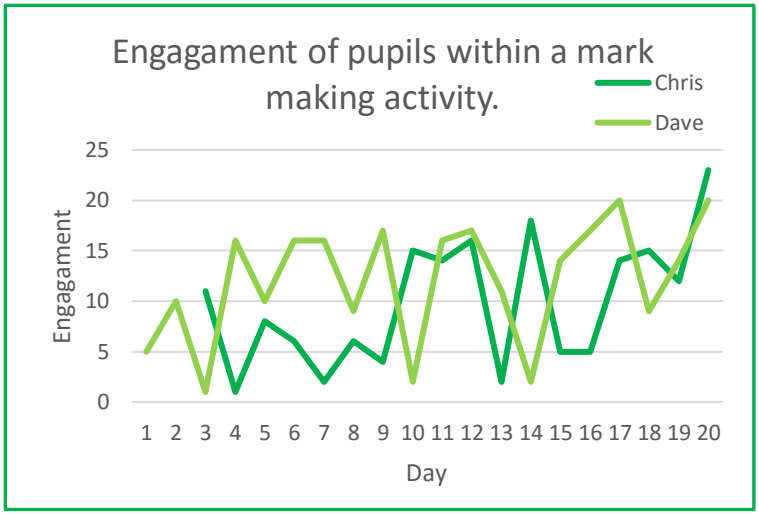
What does readiness to learn look like for pupils in our setting?

Figure 5:Teacher responses at Red Marsh School.

Teachers shared ways in which they thought readiness to learn was shown within their classrooms. Many of the responses focussed on engagement and focus. There were further comments surrounding attention, eye contact and visual structures such as timetables and 'Now and Next' boards that may be effective strategies in helping pupils to be ready to learn. The strong emphasis from teachers of 'focus' and 'engagement' informed the decision making process surrounding what the emphasis of this research would be.

Pupil Findings

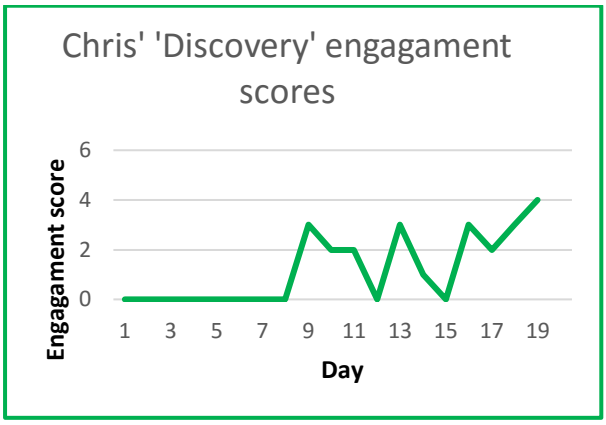
Data appears to show some increase in engagement across the data collection period for both pupils. Although there were days of very low engagement for both pupils, scoring just 1 point, the overall trend showed an increase in engagement for Chris by 10 points and Dave by 15 points when comparing the first day data was collected and the last. This falls broadly within the partly sustained category within the engagement scale.

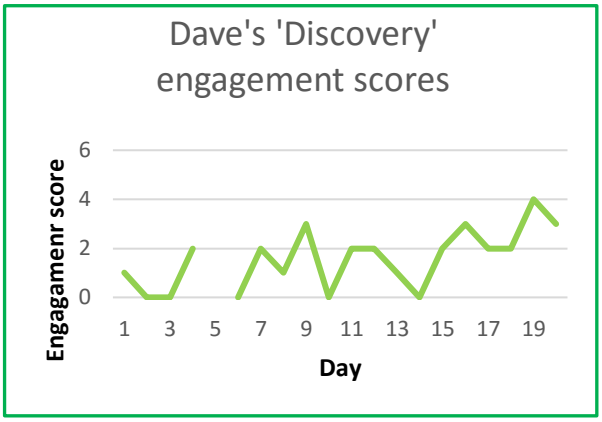


On days when the data shows particularly low levels of engagement, this can often be attributed to factors that staff were unable to control. For example on:

- Day 1, there was background noise from another pupil who was crying.
- Day 3, there was music and visuals playing; a pupil was completing a switch activity on the interactive whiteboard.
- Day 13, there was a change to normal routine; staff noted that Dave showed protest or anxiety around this change by crying and stamping his feet.

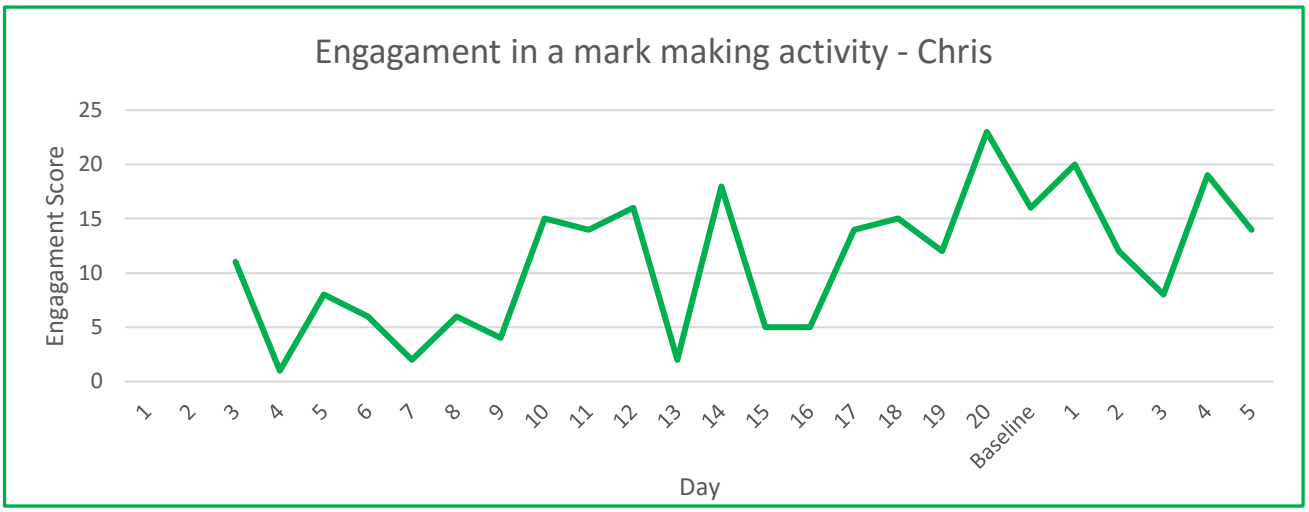
Some of these observations were noted and adjustments to the classroom environment were made in subsequent lessons, for example, staff made sure there was no music playing or pupils using an activity that involved music wore headphones, and the interactive whiteboard was turned off. Looking at the remaining data appears to show a trend of increased engagement during the intervention period. This may be due to the relaxation session having a positive influence on the pupils' readiness to learn. However, this could also be due to the pupils anticipating the routine within the relaxation session and when returning to class, displaying a 'learnt response' to the sequence of activities.



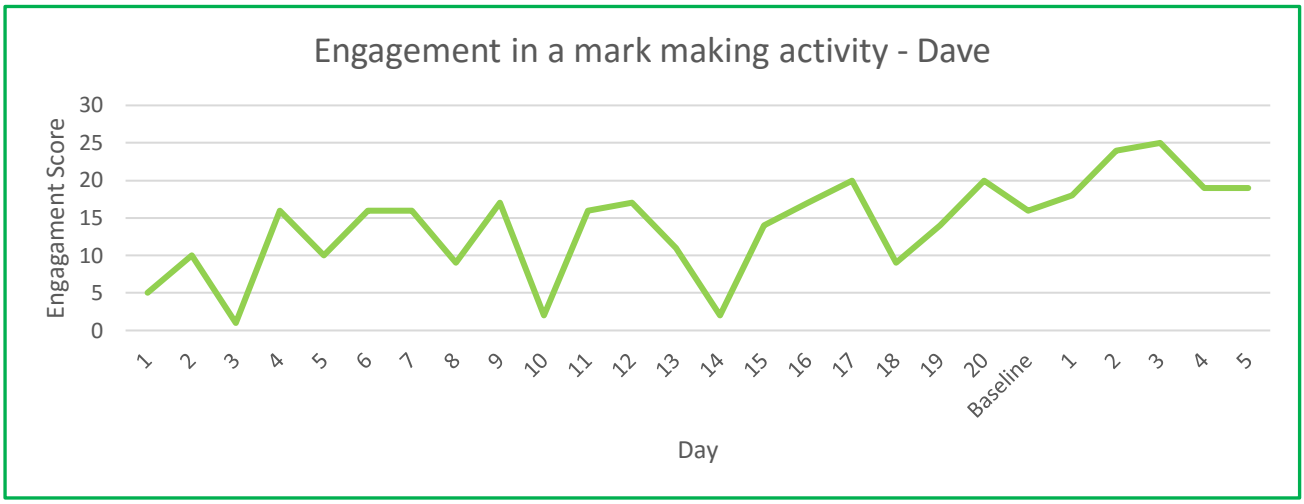


When looking at specific areas within the engagement scale, discovery drastically changed for Chris during the intervention period, whereas data for Dave shows a less drastic change. Within the engagement indicator definitions, discovery is described as a 'light bulb moment' and 'a new or repeated action or experience (planned or chance) that causes realisation, surprise or excitement' (Carpenter et al, 2010). For the first eight sessions, Chris consistently scored 0 for discovery, which meant no focus. Later in the data collection period, Chris scored partly sustained discovery on three occasions, mostly sustained discovery on four occasions and fully sustained discovery on the final day of data collection. This was demonstrated by Chris as he continued to make marks on the paper, selected different colours from the pen pot and continued the activity without adult involvement. The sudden change in Chris' engagement in discovery within the task could be due to the fact that the task was repetitively presented in a consistent manner by familiar staff in the same location and at the same time of day. This consistency may have reduced anxiety and uncertainty over the task and made expectations clear to Chris, which could explain the sudden willingness to focus on his learning. This appears to support evidence by Smith (2014) who suggests that confusion surrounding what is expected, could change a pupil's emotional state, Smith claims that this emotional state can be supported through appropriate support and positive relationships with staff.

Re- baseline and re-run of the intervention



For Chris, the data fluctuated during the re-run period, although staff noted that during the time the re-run took place, Chris had been difficult to engage in other lessons. They noted he seemed tired and was less vocal than usual, which could explain why his results fluctuated from day to day. Despite this fluctuation, data suggests that Chris' engagement in a mark making activity did increase over the whole project which could suggest that the use of relaxation strategies does have an impact on Chris' ability to engage in this specific classroom activity.



When exploring the data collected for Dave, there is a clear suggestion that the intervention does have an impact as his scores increased on all days the intervention ran during the re-run period when compared to the re-baseline result, on some days increasing to a higher engagement score than during the initial 20 day intervention period. It is unclear whether this is a direct result of the relaxation intervention, or whether this could be due to familiarity with the task, a predictable routine and staff reducing known distractions observed during the earlier intervention period such as reducing technology use in the classroom during the mark making activity.

Additional Findings

Although the session in the 4D learning zone prior to the fine motor activity was about preparing the pupils to be ready to learn in the classroom, there were some interesting observations from staff working with the pupils.

Staff noted an increase in verbal communication for both pupils, using spontaneous single words when travelling to and during the session, for example Chris said "fish" and Dave said "shark" in anticipation of the relaxation activity and during it. Both pupils have begun to vocalise "finished" or "stop" during an activity when they want it to end within the classroom. This may be a direct impact of the consistent use of language during the relaxation session to tell the pupils when a movement will end and a new one will begin. This use of language has been noted in the classroom by staff not directly involved with this study, such as when Dave said, "I want finished. Time to wash hands," to communicate he wanted a painting activity to end.

What have I found out and how can this influence further practice?

These interventions have been beneficial to both Chris and Dave, in terms of their emotional wellbeing (through addressing some of their sensory needs) and education (by supporting them to be 'ready to learn'). The changes and adaptations have allowed Chris and Dave to begin to show greater engagement within an area of the curriculum in which they previously showed little engagement. It would be interesting to further investigate whether sensory interventions at other points within the school day could have similar benefits on their engagement in classroom activities.

Furthermore, through observations and conversations with staff, Chris and Dave are beginning to show greater purposeful communication, both verbally and when using their communication aids, which in turn has given them greater pupil voice.

There have also been some interesting findings relating to the classroom environment for the pupils, notably that music and ICT resources are very distracting to them. This is something to consider when structuring activities for a mixed ability group and how best to position students or present activities in order to limit these distractions as much as possible.

Recommendations

1. A more detailed data collection involving a wider range of classroom activities to ascertain the influence on Chris and Dave's learning and educational progress over an extended time period.
2. To extend access for more pupils with sensory differences to the 4D room for a similar intervention, thereby increasing impact across the school.
3. Complete engagement scales for pupils not accessing the 4D room intervention to find out whether repetitive presentation of a task can increase pupils' engagement.
4. Explore how vestibular and proprioceptive sensory input such as deep pressure and rocking can be incorporated even more frequently into the school day to support pupils' sensory needs and increase their readiness to learn.

Further Research

Based on this small scale research project, it would be useful to explore the benefits of relaxation methods to engage pupils in their learning. The following are some potential areas for investigation:

- Do sensory interventions have an impact on engagement for all pupils?

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FURTHER RESEARCH CONTINUED

- Can sensory interventions be embedded into the school day to support all pupils' emotional health and wellbeing?
- For pupils already accessing a sensory intervention programme; could there be a benefit to adjusting these programmes or trying a different programme?

Further to this, extending the assessment process and seeking advice from external agencies may be beneficial in order to gain a better understanding into the sensory needs of individual pupils and how to effectively structure a personalised intervention to meet these needs.

Benefits of Teacher Research

From a teacher perspective, the benefits of completing this teacher research project have been:

- There has been time away from the classroom to reflect, discuss and refine strategies that support pupils within the classroom setting.
- More formal records and greater discussions between teaching staff have taken place in order to refine and develop the routine to better support the needs of the pupils within the sensory intervention.
- In the wider project there has been a network of support from other teacher researchers in similar settings with regular opportunities to share our work and the challenges of completing a research project alongside the day to day role of a teacher.

From a personal perspective, it has allowed opportunity for continuing professional development and increased my reflective practice

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