

Empowering Children with High Functioning Autism

Using Environmentally Focused STEM Learning Work Parties

Presented by:

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What is Autism?

Typically involves some or all of the following...

1. Difficulties with Verbal & Nonverbal Communication:

- Delay in, or lack of, learning to talk. 40% never speak.
- Difficulty initiating and maintaining conversations.
- Repetitive use of language
- Difficulty understanding humor, inference, idioms & metaphor

2. Impaired Social Interactions & Relationships:

- Significant problems with nonverbal communication skills
- Failure to establish friendships with children the same age.
- Lack of empathy.

3. Limited Abilities for Social Activities or Play:

- Focuses on pieces rather than playing with the entire toy.
- Preoccupation with certain topics.
- A need for sameness and routines
- Under-developed fine & gross motor skills
- Sensory Deficits - hypersensitive (over-sensitive) or hyposensitive (under-sensitive).

Why Should We All Care?

- Autism is the fastest-growing dev. disability
- It affects 1 in 68 children in the U.S.
- It affects over 3 million individuals in the U.S. and tens of millions worldwide
- It costs a family \$60,000 a year on average
- Statistics suggest an increase of 10 to 17 annually in recent years.
- There is no medical detection or cure for autism

How Does In Impact Classrooms?

Some of the main difficulties can include:

- Communicating with teachers, support staff or other students
- Following instructions
- Following classroom rules
- Knowing how to behave
- Concentrating on a task – 29-83% also ADHD

What is an Environmental Work Party?

To date we have done:

Environmental Protection - removing invasive species

- English Ivy
- Himalayan Blackberry
- English Holly
- Etc.

Environmental Restoration – planting native species

- Improves habitat for fish and wildlife
- Improves biodiversity
- Restores healthy ecosystem function

Why Environmental Work Parties?

I have observed...

1. Increases in Verbal & Nonverbal Communication:

- Work Parties provide instant context for initiating & maintaining conversations.
- Children can participate effectively using nonverbal communication
- Gives children new experiences to talk about
- Do not need humor, inference, idioms & metaphor to enjoy the party

2. Social Interactions & Relationships Facilitated:

- No need to talk in order to feel self-efficacy as a valuable part of the team
- Can help facilitate friendships with children the same age.
- Can create empathy for the trees we plant and rescue

3. More Chances for Social Activities or Play:

- Focuses on pieces and specific species is a good thing
- Chance to learn new scientific topics
- Helps develop fine & gross motor skills from climbing, weeding & planting
- Helps desensitize the children to the unpredictable outdoors because they are focused on the task at hand.
- Increases time spent outdoors

Is There Supporting Research?

Fjortoft (2001 & 2004) found young children playing in a **natural environment had a greater increase in gross motor skill development, motor fitness, balance, and coordination than their peers** in a traditional playground setting.

This may be due to the physical challenges and physical diversity that **natural landscapes afford, such as crawling through bushes, ducking under tree branches, climbing over rocks, and jumping across small streams of water.**

(Benson & Miller, 2008)

Is There Supporting Research?

Burdette and Whitaker (2005):

... a child is likely to encounter opportunities for decision making that stimulate problem solving and creative thinking because outdoor spaces are often more varied and less structured than indoor spaces. In addition, **there are fewer constraints outdoors on children's gross motor movement and less restriction on their range of visual and gross motor exploration. Together these factors that do not prescribe or limit activity induce curiosity and the use of imagination.**

Is There Supporting Research?

Research by Kuo and Taylor (2004) suggests time in natural outdoor settings **improves concentration and self-control in children with attention-deficit disorders.**

Further, active play with others provides a critical opportunity to **cultivate social skills, including cooperation, self-awareness, and self-regulation** (National Research Council and Institute of Medicine, 2000).

Empowering Children with High Functioning Autism

People with Autism have more relatives in technical fields (Grandin 2013)

Williams (2008) **suggests early experiences with nature support children's development of scientific and aesthetic thinking, so they can "appreciate beauty, express creativity, and perceive patterns and variety in sensory dimensions of their worlds and themselves"**

Going Forward...

- Develop the curriculum for integrating STEM into Work Parties
- Pilot Weekend Work Parties this Summer!
- Contact me if you have children, parents or educators who are interested in joining us.
- Share my information with anyone else interested in Work Parties or my Degree Project.
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Thank you!!

- Any questions?
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