

### **Origami And Children With Autism: A Review Article**

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#### **Abstract**

Origami which is Japanese paper folding starting from being an ordinary hobby to a technology developing technique. In other words, origami can be used in designing modern technology for instance, blood vessel enlarging stent or solar panel for a satellite. Furthermore, origami can also be uses for psychological purposes. There had been numbers of researches that confirms that origami can benefit people with mental illness psychologically. There are situations where therapist use origami to recover children from a traumatic experience, brain injuries and mental retardation. In addition, origami is able to help children with autism develop their skills in order to help them blend in to the society better. According to the research, origami benefits developing children in different ways for example, gaining more concentration, improving motor skills, develop hand-eye coordination skill and increase creativity. Lastly, I also have an interesting experience in teaching origami to autistic children.

**Keyword:** Origami, Children with autism, developing

#### **Introduction**

Origami which is Japanese paper folding, has a lot of uses mostly for entertainment purpose for example, folding into different models or toys for kids. However, there are more uses of origami. Firstly, origami can be the prototype in designing advanced and modern technology such as, stent which is a tiny tube that can inflate blood vessel for medical purposes. Also origami is used in designing solar

panel of a satellite in order to efficiently fold up the solar panel. Origami also can be uses for psychological purposes which is the main focus for this writing. Origami can be use in therapy for children with autism. There have been many researches about relationships between psychological illness and origami which many researchers have conclude that origami can enhance children focus and creativity.

#### **Children with Autism**

Autism is a general form of complex disorders that affects brain development (Autism Society of America, 2014). “Autos” taken from the word Autism alone means you (your own self) and Leo Kanner (1943) explained that Autism is running away or detachment from reality. Autism relates to neurological impairment and not psychiatric disorders.

Individuals with autism have difficulties in social interaction, verbal and non-verbal communication and also display repetitive behaviors (Linden Bridge School, 2014). Autism is an intellectual disability and autistics have difficulties in motor coordination, attention and

The pervasive developmental disorder refers to a group of disorders characterized by delays in the developmental of socialization and communication skill and a limited range of activities and interests. Literature on pervasive developmental disorder states the need to address the behavior problems related to inattentiveness and impulsivity, aggressiveness self-injurious behaviors and

temper tantrums. (American Psychiatric Association, 2000).

There are 3 main types of Autism. They are Classic Autism, Asperger's Syndrome and Pervasive Developmental Disorder.

Classic autism displays signs of difficulties in interpreting body language, lack of facial expressions, delay or lack of speech, difficulties in making eye contact, abnormal tone of voice when speaking, being detached in group settings, lack of empathy for other emotions, difficulty in understanding their own emotions, lack of awareness of personal space, little interest in playing with other children and being unable to successfully play with other children. In other words, the Classic Autistic subject prefers to be on his own and is anti-social. People with Asperger's Syndrome have normal to above average intelligence but have difficulties with social skills and often have absorbing interest in certain topics. Abnormalities in the subtle use of language are common with Asperger's Syndrome although language development is normal. Positive characteristics of people with Asperger's Syndrome has been described in many professions including the increasing ability to focus on details, the capacity to persevere in certain interests without being swayed by others' opinion, the ability to work independently, the recognition of patterns and the original way of thinking. (Conrad Stoppler, 2019).

Recent studies on the brains of people with autistic spectrum disorders (ASD) have shed light on the physiological underpinnings of their thought and emotions. These studies have given a better understanding on how neuropath ways are formed to an extent to which biology influences behavior. All minds of autism spectrum disorders are detail oriented, but how they specialize varies according to different individuals.

## **Origami**

Origami is a Japanese art of folding paper into shapes representing objects (Webster dictionary). An early use of the term referred to Japanese paper folded in half, thirds or smaller sizes (Heibonsha, 1932). Folded paper came to be used for certificates which accompanied valued objects such as swords or gifts presented to others. Origami is a complicated, accurate, interesting and entertaining art, yet it is not expensive. It is used to make a variety of forms and no wonder that the ancient

Japanese respected it and children around the world from all ages love it and are now looked upon as a kind of creative and sophisticated art. Origami is the Japanese word for paper folding. ORI means to fold and KAMI means paper. Together, they form the word, "origami." There are traditional Japanese models and origami mobile toys such as animals as well as flowers and practical origami for home such as the models used in the decoration. Each section starts with small projects, and then is developed to be models to test skills ( Fei & Sujan, 2013). Origami involves the creation of paper forms entirely by folding. Animals, birds, fish, geometric shapes, puppets, toys and masks are among the models that even very young children can learn to make in just one sitting (Araki, 2002).

## **Why Origami for Children with Autism**

In the Philippines a research was done to improve the attention span of children with Autism using origami, (Luke Santamaria, 2008). The study aimed to determine whether an origami intervention program added to the typical special education program which could increase the levels of attention span and impulse control of selected children with Autism (CWA). The four respondents in the control group maintained their typical special education program while the other four in the experimental group had an additional 20 sessions of origami intervention.

The participants were chosen through purposive sampling to make each group comparable in age, functionality, auxiliary services received, and initial levels of attention and impulse control. A two-part observation scale validated by a special education expert and a statistician was used in both the pre- and post-tests of both groups. Results were analyzed by obtaining the means and statistically compared using the Man Whitney U test. The six experts rated the origami manual highly satisfactory on all four categories of concepts, instructions, activities and appropriateness. Pre-test results indicate that both the experimental and control group displayed low levels of attention and impulse control.

Based on the post-test results, both groups displayed higher levels of attention and impulse control. When the pre-tests and the post-tests of each group were compared, both groups had a significant increase in their levels of attention and impulse control. The experimental group, however, had a significantly higher increase in attention span than the control group when both the post-tests were statistically analyzed and compared. Both group levels of impulse control, on the other hand did not differ significantly.

The conclusion that can be drawn is that the origami instructional manual is valid for Children with Autism (CWA) aged four to seven years old. CWA improved their levels of attention span and impulse control when provided with typical special education programs. CWAdemonstrates significantly higher levels of attention span when additional origami intervention is included.

Tsuboi (2009) said in his article that origami has many benefits for the brain. The PhD thesis: "Asymmetry internes aspheric function of the brain in a dynamic activity hands of children aged 7-11 years in the training of origami" observed a group of seven children from the age

of 7 to 11 years in intensive training of Origami for a week. The researchers found that Origami activity stimulated interaction between the right and left sides of the brain, and the development of verbal and nonverbal intelligence to children. Origami has been taught in schools in Japan to children at a veryimproving hand and finger strength, fine motor dexterity, visual spatial skills, and directionality, as well as of facilitating use of higher-level thinking functions such as memory, sequencing, and following directions. Origami engages multiple senses and can be adapted to a variety of disabilities and settings. Origami activities can be easily graded without increasing the complexity of the model by simply

decreasing the size of the paper squares used.Origami is extremely beneficial to both children and adults. It helps increase concentration, develops logic and imbibes discipline among children. It helps adults fight common ailments such as stress and hypertension. Origami is also used to teach concepts of chemistry, physics, architecture and mathematics. It is also used in teaching people with mental disability (Varsha, 2013).

Origami has been a great success (Table 1) in improving attention span and concentration for students with Attention Deficit Disorder; sequential and direct teaching for students with Learning Disabilities, relieving stress and anger for students with Emotional and Behavioral Disorders, providing structure and logical steps (Swanson, 1999) for students with Autism, guiding oral language for students with Speech and Language Impairments, improving motor skills for students with Physical and Health Disabilities, increasing spatial reasoning for students with visual impairments, providing a 100% visual presentation to students with hearing impairments, improving memory and organization skills for students with Traumatic Brain Injuries, improving cognitive

processing for students with mild Mental Retardation, increasing positive learning experience for students with low self-esteem (Rogers, 1969), relieving boredom for students with giftedness (Gardner, 1993), and promoting academic and social adjustment for student from an at-risk background.

**Table1.** Types of Disability Conditions and Educational Benefits of Origami.

Types of Disability Conditions	Teach Academic Skills Through Origami Construction
Attention deficit/hyperactive disorders	Improve attention span and concentration
Learning disabilities	Explicit instruction and sequential learning
Emotional and behavioral disorders	Relive stress
Autism	Provide structure and logical steps
Speech and language disorders	Guide oral language
Physical & health impairments	Improve motor skills
Visual impairments	Increase spatial reasoning
Hearing impairments	Provide 100% visual presentation
Traumatic brain injuries	Improve memory and organization skills
Mental retardation	Improve cognitive processing
Low self-esteem	Provide positive learning experiences
Gifted students	Relive boredom
At risk	Enable academic adjustment
Cultural and Linguistically diverse	Empower social adjustment

**Teaching Origami in Autistic Children's School**

My experience on teaching children with autism was interesting. I had an experience on teaching origami to children with autism. The resulting was surprisingly effective because after I taught those children with their ages around 7-16 years old at the autistic children’s school the children were so focused on the origami and seem to be more concentrate than usual they also enjoy the origami and ask me to teach them more about it. The fact that the origami models that are toys and playable models can increase the autistic children’s focus and concentration.

**Conclusion**

Many researchers have concluded that origami can develop in different ways such as, gain focus and increase creativity. I also had origami teaching experience with autistic children and I can confidently tell that the origami can really help children with autism. Anyway, there are not

so much origami teaching on children because it is more of a hobby than a therapy. However, I think it is an excellent idea to bring origami teaching to school not only for autistics but also the ordinary school hope that it will benefit the children and ease the educational process to develop their learning skills even faster and more effective. I am looking forward to and encourage origami teaching in schools because I truly believe that it will work effectively as I have experienced it myself.

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