

The effect of a visual arts training program on reducing negative behaviors and developing selected skills in children with autism spectrum disorder

Buraq Ali Ahmed Alawadi*

Open Education College, Diwanayah Study Center, Iraq

*Corresponding author, email: buraqalialawadi@gmail.com

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Abstract

The purpose of this research is to determine whether or if a training program centered on the visual arts may help children with Autism Spectrum Disorder (ASD) improve some abilities while decreasing problematic behaviors. Twenty children were included in the study, ten of whom had severe autism (mean age= 10 years) and ten of whom had mild autism (mean age= 6.5 years). The experimental design used a pretest-posttest methodology. Drawing, coloring, and clay modeling were all part of the intervention's organized visual arts program, which helped with nonverbal communication, focus, and social interaction. Both groups showed a significant decrease in maladaptive behaviors after completing the treatment, including self-injury, biting, and repetitive motions. Also, participants' cognitive abilities and fine motor coordination improved significantly. Surprisingly, despite lacking any kind of formal education, one youngster who was somewhat autistic showed remarkable aptitudes in mathematics and visual art, which are hallmarks of Savant Syndrome. Researchers found that visual arts-based therapies helped youngsters with autism spectrum disorder (ASD) improve their behavior and acquire new skills.

1. Introduction

Children with autism spectrum disorder (ASD) can struggle in several areas of development, including social, emotional, linguistic, cognitive, and sensory. According to Al-Zuraiqat (2010) and Abdel Rahman (2001), children with autism often struggle in school due to issues with adaptive behavior, social interaction, verbal and nonverbal communication, and both. Affected children may hurt themselves or flap their hands to a moderate degree. They also exhibit peculiar reactions. Autism spectrum illnesses may have minor to severe effects. (Al-Mughlouth, 2006; Al-Jalabi, 2005) Kids with moderate autism who obtain the help they need may develop exceptional talents and show signs of improved focus (Treffert, 2006). Education and therapy may both benefit from the use of visual arts. Children with autism may find that visual arts help them express themselves in ways that words alone cannot. When they feel they can't say anything, they may utilize it. A child's social cognitive abilities and their ability to control maladaptive behaviors may be improved via participation in art, modeling, guided imagery, and related activities (Al-Sayyid, 2004). Benefits of art-related treatments include involvement and management of emotions (Dina, 2015). While dealing with a particular occurrence, there may be a decrease in bad behaviors and an improvement in some life skills; nevertheless, little is known about this phenomena. Particularly relevant to our setting is Arabic research. Core developmental areas including joint attention, eye contact, imitation, listening comprehension, and gesture usage are often lacking in autistic children. According to Al-Sayyid and Badr (2001), people who have trouble hearing may also have trouble reading speech tones and

facial emotions, which may make it hard for them to fully participate in social situations. Socially inappropriate conduct, including poor attention span and repeating stereotyped actions, is typically a result of these challenges. Some of these problems have been demonstrated to be lessened by art. However, there are currently no programs that systematically evaluate the impact of visual arts on measurable improvements in behavior and skill sets (Sayed Jarahi, 2004).

This research will thus examine the effects of a training program based on the visual arts on the social and cognitive abilities of autistic children, with the goal of reducing problematic behavior. The study's specific goals include identifying talents that exhibit characteristics of Savant Syndrome and determining if there are statistically significant changes between measurements taken before and after the intervention.

In addition to giving teachers and psychologists a useful framework for their work, this research is noteworthy because it addresses a vacuum in the Arabic literature on the topic of art-based intervention for autistic children. This research introduces a novel approach to improving the quality of life for families living with autism via the use of intervention programs that combine visual arts. These programs can change behavior, foster creativity, and increase independence for children with autism.

2. Method

Children with Autism Spectrum Disorder (ASD) were evaluated using a one-group pre-test-posttest design based on experimental research to determine the efficacy of a visual arts-based training program in reducing problematic behavior and improving certain social and cognitive abilities. Research on interventions for autism has shown that experimental designs are useful for evaluating changes in behavior or development (Sayed Jarahi, 2004; Bayoumi, 2008). Twenty children, divided into severity-based groups, were included in this research; all had an ICD-10 diagnosis of autism spectrum disorder. With an average age of 6.5 years, there were 10 children with mild autism and 10 children with moderate autism. The participants from the Al- Awj Center for Special Education and Autism in Irbid Governorate, Jordan, made up the whole sample. The duration of this intervention was six weeks. From March 19th to April 28th, visualarts-based training was offered in South Africa. As a result, certain behavioral and development goals were to be achieved. Some of the things covered were decorating with dough and clay, coloring pages, and sketching and coloring. Participation and skill development may be achieved via the organization of educational activities for children with exceptional needs [4, 9]. The three outputs were executed in a three-step process: a pre- assessment to determine the baseline value; a method to be implemented using structured sessions; and a post-assessment to quantify the change from the baseline.

A variety of behavioral approaches were used to improve the program's efficiency. These included material and social forms of immediate reward, verbal and physical prompting, modeling and imitation, and teaching and prompting via repetition with shaping. In order to help autistic children learn adaptive behaviors, reward techniques are essential (Sayed Jarahi, 2004; Gamze & Coukaytar, 2007). In order to create a multi-sensory learning environment that aids in perceptual and motor development, we will be using the following materials: A4 size paper, pencils, colored pencils, dough, pottery clay, oil paint, canvas, paintbrush, and turpentine (2011).

The methodology's stability is confirmed by several equipment used to measure the variables. For the purpose of keeping track of undesirable behaviors, such as cutting one-

self, fidgeting, losing focus, and more, the researcher created an organized checklist. Consistent with other approaches to evaluating dysfunctions in autistic children, these maladaptive behaviors were evaluated (Abdel Rahman & Abdel Rahim, 1999). On a Likert-type scale, from 1 (never) to 5 (always), participants assessed the frequency and severity of the behavior they saw during sessions. A skills assessment tool designed for children on the autistic spectrum was used to evaluate the child's cognitive and social abilities. Eye contact, collaborative attention, mimicry, following instructions, and task involvement were all included as indicators of response. Disabilities in a number of important areas of development define the autism spectrum.

Changes in behavior and engagement were also recorded in each session using the observation recording forms. This led to constant tracking of development. To ensure the reliability of the tool, it was reviewed by a group of specialists in the fields of psychology and special education. Based on their opinion, the content validity was proven. Results from test-retest methods and internal consistency analysis (Cronbach's alpha) showed that the reliability was satisfactory. Methodological rigor is of the utmost importance in the fields of education and psychology (Bayoumi, 2008).

Reducing undesirable behavior and improving targeted developmental abilities are the goals of the training program, which is organized as an activity-oriented set of experiences. Autism spectrum disorder (ASD) is described by Al-Jalabi (2005) and Al-Mughlouth (2006) as a developmental condition marked by difficulties with social interaction, repetitive behavior, and communication. Negative behaviors include things like using derogatory language or engaging in disruptive behaviors; on the other hand, a person with savant syndrome has exceptional talent in some areas, according to the early research on autism. The investigation was limited by the sample, the environment, and the time available.

Table 1. Summary of Research Methodology

Component	Description
Research Design	Experimental, one-group pretest-posttest design
Participants	20 children with ASD (10 mild, 10 moderate)
Age	Mild: 6.5 years; Moderate: 10 years
Setting	Al-Awj Center for Special Education and Autism, Irbid, Jordan
Duration	March 19 – April 28, 2019 (6 weeks)
Intervention	Visual arts-based training program
Activities	Drawing, coloring, decorating, sculpting
Procedures	Pre-test → Intervention → Post-test
Techniques Used	Reinforcement, prompting, modeling, imitation, repetition, shaping
Materials	Paper, pencils, clay, oil paints, brushes, canvas
Instruments	Behavior checklist, skills assessment scale, observation forms
Measurement Scale	Likert scale (1-5)
Validity	Expert review (content validity)
Reliability	Cronbach's alpha, test-retest
Key Variables	Negative behaviors, social skills, cognitive skills
Study Boundaries	Human, spatial, temporal

3. Findings and Discussion

This study's findings provide credence to the idea that a visual arts-based training program might help children with Autism Spectrum Disorder (ASD) significantly and consistently improve their physical, social, cognitive, and behavioral abilities while simultaneously reducing their negative behaviors. Compared to children with mild autism, those with moderate autism had higher developmental and behavioral delays at the baseline (pre-intervention stage). Moderately autistic children exhibited extreme maladaptive behaviors included cutting themselves and acting out their emotions and motor (clapping) routines. Mildly autistic youngsters, on the other hand, mostly shown difficulties with attention regulation, task conformity, and recurrent interest restrictions. This supports the claims made in the literature on autism, which characterizes the diagnosis as an impairment in social interaction, behavior, and communication. (Al-Zuraiqat, 2010; Abdel Rahman, 2001).



Figure 1. Early-stage drawing activity using geometric shapes and coloring to improve attention and engagement in a child with autism.



Figure 2. Drawing and coloring activity involving geometric shapes to enhance attention and task engagement in children with autism.

This did not occur immediately after the implementation of the intended intervention but rather throughout the course of the sessions. The learning process was thus sequential. The kids had fun with sketching activities at the beginning of the session. Figure 1 shows the children's drawings of basic forms including squares, circles, and triangles. After that, students used the provided border (figure 2) to color in forms. The stability of the participants' conduct with the task was much improved by these first exercises. A risk-free setting for learning was established by the structured and predictable assignments. As Al-Jalabi (2005) points out, autistic youngsters place a premium on structure and regularity. Attention span, task compliance, and response to instruction all saw notable gains as a result. Clearly, visual structure has the potential to play a significant role in attention and behavior management.



Figure 3. Children with autism may improve their sensory-motor abilities and decrease their negative behaviors via clay modeling activities

A program of clay modeling was started as part of the continuing intervention to encourage motor and sensory development (Figure 3). Through these activities, children were able to explore different textures and work with different materials. This allowed them to strengthen their fine motor skills and integrate sensory input. Unwanted behaviors, such as biting the clay and improper exploring, begin at the start of this period. Constant urging, encouragement, and direction led to a gradual reduction in these behaviors. There was a marked decline in the frequency of clapping at around the same period. This study lends credence to the idea that orga-

nized sensory experiences have the potential to transform dysfunctional behaviors into more constructive ones. (Al-Sayyid & Badr, 2001).



Figure 4. Advanced-stage activities involving color organization, line connection, and geometric assembly to improve concentration and reduce negative behaviors in children with autism.

One turning point in the intervention occurred during the advanced activity stage, when children were exposed to these more cognitively demanding tasks including color discrimination, classification, and organization (see Figure 4). One youngster first exhibited hostile feelings against the color red, exhibited restlessness, and flat-out refused to continue with this section of the exercise. The kid had no problems using the same color after some careful task structure, progressive exposure, and reinforcement. According to the principles of behavioral modification, training an animal to do a new behavior requires gradual desensitization to the stimulus and subsequent controlled exposure in a learning environment (Sayed Jarahi, 2004). Cognitive processes like classification or visual organization may have their origins in the ability to arrange colors meaningfully (when creating a flower, for example).



Figure 5. Artwork created by an autistic youngster using oil on canvas showing that the child is able to focus better, interact positively, and exhibit no negative characteristics.

The program's evolution was on display in the increasingly sophisticated and emotive oil on canvas paintings (see Figure 5). Here we saw the first signs of serenity, autonomy, and focus. As a matter of fact, the stimulus's ability to elicit an unfavorable response gradually diminished. The kids' faces were full of imagination and self-assurance. Successful replacement of aggressive, clapping, and self-injury behaviors with meaningful activity is shown by their absence. Changes in how people interacted with one another were also noticeable. The children engage in play, talk, and exhibit curiosity about their surroundings. This study's results provide credence to the idea that the visual arts are a powerful form of expression and participation. (Dina, 2015).



Figure 6. A youngster with autism who uses red to show signs of improved self-control, prolonged attention, and lack of negative behaviors.

Following this, children demonstrated improved attentional stability and self-regulation in response to stimuli that had previously presented difficulties (see Figure 6). That bad habits have not persisted over time is evidence that the positive ones were more than a passing fad. This suggests that it contributed to the maturation of self-control systems and other behavioral adaptations essential for sustained performance.



Figure 7. Activities involving drawing in children with moderate autism spectrum disorder demonstrating enhanced focus, task diversity, and developing abilities in symbolic representation.

Instead than concentrating on reducing behavior, the development of moderate autism aims to increase intellect and creativity. At first, the kids were rather closed-minded, and all of their projects were the same. Figure 7 shows that students started to add details and length to their drawings in themed drawing exercises. Visual motor integration, cognitive flexibility, and gains all showed improvement. Cognitive processing and learning flexibility are enhanced when youngsters go from basic, repetitive drawings to more complex, meaningful ones.



Figure 8. Dough modeling activity demonstrating improved fine motor skills, imitation, and concentration in children with mild autism.

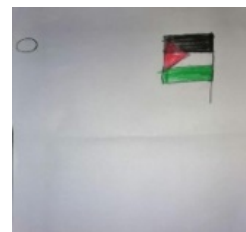


Figure 9. Thematic drawing of the Jordanian flag showing improved concentration and organized task engagement in children with mild autism

In subsequent years, creative and fine motor abilities were enhanced via activities such as modeling dough and clay (refer to Figures 8 and 9). As they practiced, kids were able to imitate the provided forms and eventually come up with their own unique, creative designs.

The children maintained their improvement in modeling activities, becoming more independent, accurate, and consistent (Figures 10 and 11). Results show that hands-on creative pursuits help children's motor, cognitive, and creative processes work together.



Figure 10. Crafting with clay as a means of practising fine motor skills and completing certain assignments.



Figure 11. Activities involving clay and pottery modeling show that children with moderate autism have increased fine motor abilities, inventiveness, and sustained attention..



Figure 12. A youngster with autism displaying high levels of focus, accurate depiction, and growing remarkable talents similar to those of a savant on a cognitive test centered on art and thematic drawing.

During the cognitive-art integration stage, one youngster exhibited exceptional skill in combining artistic expression with abstract cognitive ability; this finding was one of the most unexpected in our research (see Figure 12). Even without formal instruction, the kid was able to express the idea of pollution—both environmental and mathematical—through visual and linguistic means. This fits the criteria for Savant Syndrome, a condition characterized by exceptional talent despite a severe impairment (Treffert, 2006). The child's work exemplifies the power of visual arts as a diagnostic and developmental tool for uncovering autistic children's latent skills, thanks to its precision, quickness, and uniqueness.

The results add to the existing body of evidence showing that behavioral intervention strategies, when combined with organized visual arts activities, provide better and longer-lasting developmental outcomes. The current study emphasizes on the benefit that comes from adding creative, sensory, and cognitive elements to the program, as opposed to other research efforts that have concentrated on reinforcement for behavior modification (Gamze & Coukaytar 2007). Children with mild autism showed improved cognitive abilities, while those with intermediate autism completely ceased acting out. The power of the arts as a teaching and healing medium is well shown here.

These findings highlight the need for intervention techniques that are both comprehensive and tailored to each individual's needs in order to target several areas of development at once. Because they provide a multi-faceted framework for improving behavior, cognition, and emotional expression and because they give chances to recognize and cultivate individual talents, visual arts should therefore be methodically included into special education programs for children with ASD.

Table 2. Integrated Summary of Findings

Activity Stage	Sessions	Activity Type	Behavioral Outcomes	Skill Outcomes
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Initial Stage	3, 11, 12	Drawing and Coloring	Reduced distractibility and increased task compliance	Improved attention and basic visual-motor coordination
Sensory Stage	6–10	Clay Modeling	Decreased stereotypical and sensory-seeking behaviors	Enhanced fine motor skills and sensory integration
Advanced Stage	13–15	Color Organization	Reduced emotional reactivity and improved self-regulation	Improved cognitive processing and visual organization
Expressive Stage	19–20	Oil Painting	Elimination of maladaptive behaviors	Enhanced emotional expression and autonomous engagement
Cognitive Stage	16–22	Art-Cognition Integration	Sustained behavioral stability	Emergence higher order cognitive skills and savant-like abilities

3.1. Limitations of the Study

It is important to remember that this research has several limitations. Researchers were only able to recruit children from one specialized facility, and the sample size was limited ($n = 20$), thus their findings may not apply to the broader community of children with ASD. Their results may not be generalizable to other autism spectrum disorders as the study did not include children with severe autism.

The study design employs a one-group pretest-posttest design, which does not include comparison groups, for sample determination. The intervention permits a complete separation of programmer's impacts from others, even if this design enabled us to monitor changes arising from the intervention alone.

This procedure only required six weeks to complete. Although there was an improvement during this time, it is unclear whether these results would be maintained going forward due to the lack of follow-up data.

Measures based on observation and instruments created by researchers also contributed to some of the data. Despite everyone's best efforts, there is always the chance that bias may creep in. Because the children participating in the program's research may come from diverse backgrounds, get various types of assistance, and have unique sensory needs, there will likely be systemic disparities among them.

3.2. Implications

Children with autism spectrum disorder (ASD) may benefit more than previously thought from intervention programs that prioritize visual arts, according to the study's results. Both the main event and the simple appendix are linked to the control of actions, the distribution of focus, and the manifestation of emotion in a structured creative experience. This lends credence to the idea that behavioral techniques that bring together sensory approaches and creativity might foster more complete development.

The results show that visual arts may be a part of many other kinds of activities, not only those in the classroom. Activities that are both simple and organized, such as coloring pages, clay modeling, and sketching, have been shown to improve focus and engagement while decreasing disruptive behaviors. Students with ASD may benefit from individualized instruction since their activities are strengthened and developed step-by-step.

The research also found that visual arts students may have abilities that may not show up on standardized tests. Participation in creative activities may help people with Savant Syndrome better recognize their strengths rather than their weaknesses, since the disorder is characterized by a marked improvement in these areas. The research of Darold A. Treffert, who shares this approach, posits that autistic people have both impairments and strengths.

Taken together, these findings suggest that treatments may benefit greatly from more leeway and imagination. More funding for the visual arts in schools and rehabilitation centers may provide for more engaging learning and behavior changes.

4. Conclusion

The results of this research show that children on the autism spectrum may benefit from a training program that is focused on the visual arts in terms of enhancing their motor, social, and cognitive abilities as well as lowering negative behaviors. The examination uncovered a steady and steady progress as a result of the intervention's planned phases. In addition, children with a mild type of autism were the most likely to have their maladaptive behaviors eliminated entirely.

In addition, research has shown that persons with Savant Syndrome or similar skills may uncover their dormant talents via the visual arts. Therefore, it is imperative that we implement both a strengths-based strategy and recommendations based on behavior.

Results demonstrate that visual arts instruction provides a comprehensive, evidence-based approach to helping children with autism spectrum disorder (ASD) reach their full potential. The program's use of behavioral modification approaches in tandem with artistic expression—which may function as a model for both education and therapy—attended to many domains of development simultaneously.

To validate and generalize these findings, future research should use larger samples, incorporate different degrees of autism severity, and use more robust experimental methods.

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Appendix A. Intervention Session Summary

This appendix presents a structured summary of selected intervention sessions conducted during the implementation of the visual arts-based training program. The data are organized by participant group and highlight key activities, behavioral responses, and developmental outcomes observed throughout the intervention period.

A1. Moderate Autism Group (n = 10)

Session	Activity Type	Description of Task	Observed Response	Behavioral Outcome
3	Drawing (Colored pencils)	Abstract drawing to express emotions	Moderate engagement	Reduced tension and initial focus
10	Clay modeling	Reintroduction to clay activity	Weak response	Limited behavioral change
11	Drawing (Line connection)	Connecting geometric shapes	Positive response	Improved attention and task compliance
12	Drawing (Shape completion)	Completing and coloring circular shapes	Good engagement	Increased concentration
13	Drawing (Color exposure)	Use of multiple colors including red	Negative reaction	Emotional agitation
14	Color organization	Arranging colored balls into patterns	Active participation	Reduced emotional instability
15	Color organization	Reintroduction of red within structured task	Gradual acceptance	Improved emotional regulation
19	Oil painting (Canvas)	Painting within structured frame	High engagement	Absence of negative behaviors
20	Oil painting (Free expression)	Use of red and green colors on canvas	Excellent response	Full behavioral regulation

A2. Mild Autism Group (n = 10)

Session	Activity Type	Description of Task	Observed Response	Skill Development Outcome
1	Drawing (Fruits)	Drawing and coloring fruits; writing names	Positive engagement	Improved attention and labeling
2	Dough modeling	Creating facial shapes using dough	Independent exploration	Sensory and motor development
4	Thematic drawing	Drawing a mosque and writing name	Good concentration	Symbolic representation skills
5	Thematic drawing	Drawing the Jordanian flag based on visual input	Organized response	Visual-motor coordination
6	Clay modeling	Creating a basket shape	Independent execution	Fine motor skill development
7	Clay modeling	Forming a flower shape	Positive engagement	Creative skill enhancement
8	Clay modeling	Shaping a jar structure	Enjoyment ob-	Motor coordination

			served	
9	Creative modeling	Constructing a cake based on imagination	High engagement	Creative thinking
16	Cognitive drawing	Drawing environmental pollution concept	High concentration	Cognitive awareness
17	Coloring task	Coloring previously drawn image	Sustained attention	Task persistence
21	Art-math integration	Visual representation of mathematical concepts	Exceptional performance	Advanced cognitive ability
22	Art-math integration	Use of numbers and symbols in visual composition	Highly focused	Evidence of advanced/savant skills

Appendix Notes

1. Sessions were conducted over a six-week intervention period.
2. Observations were recorded using structured behavioral and skill assessment forms.
3. Session selection reflects key developmental transitions and representative responses.
4. Detailed raw observational logs are available upon request for replication purposes.