

Visual Arts Interventions for Kids with Disabilities

Jun Dong^{1,2}, Kamal Sabran^{1,*}

¹School of Arts, Universiti Sains Malaysia, Penang, Malaysia

²Animation and Digital Art Institute, Communication University of China, Nanjing, China

Email address:

dj09123696@outlook.com (Jun Dong), kamalsabran@gmail.com (K. Sabran)

*Corresponding author

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Abstract: Our research background is based on the visual arts, to explore the intervention and improve the potential of disabled children's rehabilitation experience. Our research is divided into three parts. The first part of the research discusses the characteristics of visual art and its application in the field of health care through the literature; The second part of the study is to review visual arts interventions based on available data, mainly from the following aspects: ADHD in kids, ASD in kids, Special Learning Disorders, family environment, physical and mental health; Finally, we discuss and summarize the impact of visual arts on the rehabilitation experience of kids with disabilities. This paper, using literature study's research methods, analysis of nearly 10 years of related literature and draw the relevant data tables. This study aims to provide a comprehensive systematic literature review and reference for future visual arts intervention research. We hope that the digital visual media design intervention can promote patients recoveries, such as the Augmented Reality technology and Virtual Reality technology, and hopes digital virtual visual art combined with the Metaverse concept, in the future to further curb childhood ADHD in a disease's global incidence, the development of interdisciplinary applications and digital visual art also is of great significance.

Keywords: Visual Art Intervention, ADHD in Kids, Health Care, Visual Arts, Visual Media Design

1. Introduction

Art intervention, also called art is a kind of art therapy intervention method or way, mainly across the two fields: art and psychology. In a narrow sense, usually refers to the painting therapy, art therapy while painting belongs to the category of visual art, art therapy for patients with intervention method or way to visual art more intervention, intervention such as painting and calligraphy art intervention, arts and crafts and art intervention intervention, photography art, movies, art and so on. In fact, the visual arts intervention in the 1930 s in the west in the field of education reform, teachers of fine arts Eleanor Ullman, Edith Kramer use of visual art in art therapy to the special children's intervention, contains two aspects of rehabilitation education and intervention. RON German children in his artistic growth theory, when the children found the line on the paper are what kind of that moment; he had discovered something he will never lose because he found the art. Therefore, art can also intervene in children's psychology and behavior, adjust

their psychological state, and develop their potential. This article selects the between 1995 and 2020, using the visual art intervention for ADHD, children with autism, children with specific learning disabilities and their physical and mental health intervention instance and literature, idea, and process of art intervention and clinical effect, analysis, and comparison of the similarities and differences, and aims to provide for the visual art intervention research in the future the comprehensive theoretical reference.

2. Background

2.1. Visual Arts Interventions for Kids with Disabilities (ADHD in Kids)

ADHD is short for attention deficit hyperactivity disorder, this is a higher incidence of school-age children's psychological behavior problems. It mainly displays

dynamic and inattention, impulsive, and difficulty to adapt to society. Research has shown that a single drug treatment can only temporarily control attention-deficit hyperactivity disorder [1]. But it doesn't help them to improve their ability to deal with problems. So this is where the rehabilitation treatment and intervention education intervention, intervention including visual art. And visual art intervention into painting, sculpture, arts and crafts, photography, film, and various intervention measures such as art and design.

2.2. Visual Arts Interventions and Its Validity

With the subject of art and design creative training, through various forms of art, let the children's attention to the people who are closely related to their appearance, body shape, and physical characteristics. Studies have shown that the influence factors of children with ADHD are more, so we need to carry out systematic analysis from multiple perspectives and integrated management measures [2], such as art intervention, the intervention is to improve the family education environment and social environment, on the basis of a single drug treatment, supplemented by art intervention, can improve the ability of comprehensive intervention at the same time, reduce the disease cause harm to children, promote the sick children rehabilitation.

3. Methodology

This study chose between 1995 and 2020 instances of literature and intervention. Make sure the search keywords. Visual art is defined as performance art, also known as expressive art, including painting, sculpture, architecture, arts, photography, film, and all kinds of design related to the art category. The main target population affecting the rehabilitation experience, includes children, children's parents, and school staff. Therefore, iterative search keywords include visual art intervention; Children with ADHD; Autism, specific learning disabilities, health care; Family environment; School. Drug therapy; Art intervention; Painting; Calligraphy; The clay modeling; Art design; 3d technology; The artistic creation psychology; Environmental awareness; Handling interpersonal relations.

The database used by including Elsevier, PubMed, WOS, Springer open, Scopus, and Cnki, Wanfangdata. Use the advanced search function, and use the keyword search-related research. In order to improve the quality of the institute for research, this study selects only the previous studies in 2020. Set after the search strategy, in line with the principle of the high-quality literature reading, after the screening, began to read the literature of part of the title and abstract them one by one, to determine where the papers up to the standard of review. Then, each further reading literature research method, the object of study, experimental test and result analysis, and discussion. The selected study result classification and summary are in the table.

4. Results of Analysis

4.1. ADHD and ASD in Kids

Painting, belongs to the category of visual art, and painting therapy, due to the painting itself can be used as an emotional expression and expression tool, and so on, under the joint action of the ADHD children's self-control, paying attention to the stability behavior has a good effect of the intervention. In a study of students, the intervention of the experimental study of a Chinese city will take a painting intervention of children and children not to take intervention to control experiment. Results show that the art intervention on children's attention in the concrete practice, hand-eye coordination, have higher requirements, as well as express the art of painting, its itself is the natural emotional expression tool, to express the negative emotions of children, largely on ADHD children's attention, the stability of self-control behavior such as the good effect of interventions [3]. In fact, in the current worldwide art intervention, using the control experiment of dozens of children as the sample is relatively rare. Most art intervention with the individual case study is given priority, this is because each child or adolescent has symptoms, and different behaviors, so you need according to the subjects of the ages, the symptom severity level set can meet the demand of the experimental object itself and the intervention of the experiment plan. Next, a case study on improving the capability of the autistic children's communication will be more carefully shown the whole process of individual case art intervention.

ASD is also called autism, is a kind of generalized developmental disorders. ASD (Autism Spectrum Disorder) Is short for it. At present, the world health organization (WHO) report of the global average prevalence was 62/10000 (0.62%), equivalent to one in every 160 children with autism children. From the reports from all over the world, the actual prevalence of autism may be higher than the data. According to the CDC's Autism and Developmental Disabilities Monitoring (ADDM) data, every 59 children have an Autism. Has the study shows that Asian patients with ASD the average prevalence of between 1% and 2%, and is on the rise.

In fact, this is still relatively conservative statistics and calculation, because there are a number of Asian countries that still lack census data, and can diagnose most children are moderately severe symptoms, there are many symptoms light children have never been found. In the face of such a large number of people with autism and their needs, the means of all sorts of rehabilitation treatment on the positive attempt, based on the actual effect of the artistic intervention is one the world in recent years, more methods to try.

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ADHD children's attention, the stability of self-control behavior such as the good effect of interventions [4] Charity school in Suzhou industrial park Asia game entities are autistic children, virtual team, they through the five autistic children 2 years of follow-up study found that it is concluded that the virtual entities are interactive art on autism children's emotion regulation, focus on the stability of ascension has a significant effect of conclusion [5]. This case is typical of the role of visual art media design in artistic intervention. A study about the attention of the two experiments results fully show

that the visual arts of painting and calligraphy art intervention on 34 mentally retarded children (children with autism) attention, such as stability, selectivity, and flexibility increase obviously, and has certain rehabilitation effect [6]. This kind of behavioral intervention is the behavior of the activities associated with the use of painting and calligraphy art and its effect to achieve the purpose of the intervention, the intervention of children with autism can restore, promote and maintain the positive role of individual physical and mental health.

Table 1. Review of studies that improve children with ADHD and ASD.

Authors	Study population	Number	Outcome measures	Results
WHO (2020)	Children around the world	10000	The report	62/10000
CDC (2020)	Children around the Asia	10000	The report	169/10000
Wangshuo (2015)	ASD Children	2	A 3-month intervention training was initiated to test whether art therapy promotes communication Capacity development in ASD children.	It can be seen that the creation of artistic works and handicraft creation activities in artistic intervention can help the hand grasp ability and coordination Between fingers of ASD children, and as a new external stimulus, it can enhance children's flexibility and attention.
Wuchenxi et al. (2016)	ASD children at Ren'ai School in Suzhou Industrial Park in Asia.	5	They followed up five ASD children for 2 years.	That the virtual reality somatosensory interaction art has a significant effect on the emotional regulation and attention stability of ASD children

4.2. Special Learning Disorders

Special learning difficulties as a term, is a "general", including some of the more specific learning obstacles, disorders such as reading, writing, dyscalculia, language communication obstacles, nonverbal learning disabilities, the obstacle to visual perception, movement disorders, etc. These problems will interfere with the child's mastery of basic skills, such as reading, writing, and arithmetic, and even interfere with advanced skills, such as organization plan, time management, executive ability, abstract thinking, reasoning, memory, and attention, etc. (Center on The Developing Child Harvard University), according to a study of children are not born with these skills, and they have The potential of Developing these skills [7]. Therefore in the art intervention treatment, in addition to a range of different topics mentioned in the article before the artistic creation of multiple intervention training, another is based on individual art projects carried out by the long-term or short-term intervention. A University of the Aegean Comparing videos and a 3 d virtual environments for would school - related functional skills and behaviors to students with ADHD or developmental dyslexia, displaying challenging behaviors: a case study disability in the development of executive functioning is complete tracking the number of individual cases with special learning disabilities and an art intervention project instance. This study presents a comparative study, including video and visual 3 d virtual design is used in the teaching of ADHD children with special learning disabilities of learning skills, the study showed a challenging, collected through intervention training results show that the school-age children in the visual design's real 3 d virtual design reasonable behavior significantly increased the number of campus environment to maintain, their functional skills

improved significantly. Therefore, can be thought of visual 3 d virtual design as a kind of promising tool, that can help ADHD or a specific learning disorder children better learn function skills [8]. An artist named Brett to three students with specific learning difficulties as A case study, through the creation of four-week art project training, hope and through solving the problem of art to improve the students perform functional defects [9]. The art project writing training is different from the previously mentioned painting creation intervention, the intervention set training content more single-minded, also more focused on intervention time arrangement. Thomas a. Brett closely followed the subjects of each project step, he actually saw the active intervention as A result, he found that students with specific learning disabilities can indeed through art training develop their ability to execute, the corresponding thinking, reasoning, memory, and attention skills has improved, and the ability to raise help students in the process of other learning difficulties. College of Imaging Arts and Sciences Rochester Institute of Technology of MANSI VORA developed an innovative approach to learning projects, this new way will help children concentrate on their attention, at the same time so they can more easily understand the mathematical concepts. This project is based on the interactive animation design, it is geared to the needs of the children with ADHD and mathematics learning disabilities, by Adobe Flash software builds. Encourage them to try a new method of study, at the same time enjoy a variety of fun. It focuses on the arithmetic knowledge, introduced by animation, in the form of interactive games, strengthened the children's mastery of knowledge and skills, the form is scalable and can expand children's ability to practice [10]. ASD is a large part due to the lack of executive function, and the lack of executive function may study the future of children, social function, and mental development. Rich art and culture of intervention studies have shown that in six

months, according to the results before and after the intervention with the passage of time, 66 children (31 girls, average age 7:1) have improved their executive function. And intervention group is significantly higher than the

control group. Interviewing teachers revealed the study from the side of the children in that team cooperation, interpersonal relationship, inclusive heart, vocabulary, and confidence has a positive effect [11].

Table 2. Review of studies that improve special learning disorders.

Authors	Study population	Number	Outcome measures	Results
Lawrence (2007)	Children around the USA	1000	The report	Children aren't born with these skills, and they have the potential to develop them.
Fokides et al. (2019)	Several individual cases with special Learning disabilities	16	The participating students (sixteen 8 to 9 years old) were divided into two groups. To the first, videos were used and the second used the virtual environment. To both, a school environment was presented, students observed how they were expected to behave.	The results collected through intervention training showed that the number of reasonable behaviors maintained in real campus environments designed by the visual 3D virtual design was significantly improved in their functional skills.
Mansi (2012)	Students with specific learning disabilities can indeed through art training it is geared to the needs of the children with ADHD and mathematics learning disabilities.	1	By AdobeFlash software builds. Encourage them to try a new method of study, at the same time enjoy a variety of fun. It focuses on the arithmetic knowledge, introduced by animation, in the form of interactive games, to strengthen the children grasp of the knowledge and skills.	This form is scalable, can expand children's ability of practice.
Brett. (2018)	Students with specific learning difficulties as a case study.	3	Through a 4-week art program training, hope and by solving art problems. The art project writing training is different from the previously mentioned painting creation intervention, the intervention set training content more single-minded, also more focused on.	Students with specific learning disabilities can indeed through art training to develop their ability to execute, the corresponding thinking, reasoning, memory and attention skills has improved, and the ability to raise help students in the process of other learning difficulties.

4.3. Family Environment

Most social scientists believe that environment will affect human behavior, but in real society, most people usually think that individual is independent of their environment. So a study testing a hypothesis, which improves the quality of environmental aesthetic function is dependent on the household system shows the corresponding positive attitude and behavior. The research may interventions by changing the human and non-human environment contribute to the improvement of the children in the aspect of cognitive function [12].

Another study found that the head-mounted device for autistic children to adapt to the environment, family environment and social environment) is effective, this equipment is used to improve three ASD children's social understanding and skills. They are three ASD children has carried on the preliminary research and analysis. Results show that the use of the 3 d virtual system, participants of nonverbal communication and family cognitive and social cognitive behavior are improved. This shows that the system may be to promote the ASD children's social skills upgrading to provide a good learning environment, family environment and social environment [13].

Table 3. Review of studies that family environment.

Authors	Study population	Number	Outcome measures	Results
Lazarus (1998)	The child has been assessment for defects in cognitive function	1	The family has purposeful control of the environment and creating a talking book.	Long-term care facilities, home environment control is likely to prove a fertile ground for the treatment of rehabilitation for children.
Yufang Cheng (2015)	ASD children is difficult to adapt to the environment.	3	They tested the system based on 3D virtual environment.	This suggests that the system may provide a good learning environment, home environment and social environment for promoting social skills improvement in children with ASD. every 59 children.

4.4. Physical and Mental Health

Developmental trauma is a term that refers to children under the influence of bad experiences, lead to lost will feel, emotional, cognitive, and relationship of the information integration of the ability. And easy to turn into a ASD or special learning disabilities, is a kind of body and mind health damage. A creative art therapy as a child traumatic

intervention studies have found that once the children to create art works, in the clay had bad memory effect has been reduced to them, this is a kind of sports art intervention, innovative [14].

Children's physical and mental health problems in the world have presented a sharply rising trend, in addition to the above-mentioned ADHD, ASD, specific learning disabilities, and developmental trauma, there is a children's mental illness

is spreading quietly, it is the opposition against the barrier, referred to as "ODD, a study based on art intervention on 30 7 to 12 years old children with opposition against the obstacles.

Symptoms, according to the results of the experiment control group significantly reduce, the test before - after the test control group no significant difference [15].

Table 4. Review of studies that physical and mental health.

Authors	Study population	Number	Outcome measures	Results
Cornelia Elbrecht and Liz Antcliff (2015)	Developmental trauma of children	11	Artistic creation using clay is a sports art intervention therapy that is different from traditional game therapy because it is more focused on touch.	This study found that the effect of once had bad memories on children was reduced once they were doing such artistic creation.
Mojtaba et al. (2013)	Children with opposing resistance aged 7-12	30	The study was conducted using an interview / observation and file analysis of twelve art treatments a week with a class duration of 40 mins based on parent and teacher interviews and reviews.	The results showed significant reduction in experimental controls and no significant differences between pre-and post-test controls.

5. Discussion

The above is about visual art therapy in improving ADHD, children with autism, and specific learning disabilities children and promoting children's physical and mental health through several intervention instances. In view of the relation between children are symptoms, but in real life, in children compared with moderately severe symptoms, mild symptoms obviously larger the number of children, because children who are for mild symptoms of the census is lack and no attention. In the present new pandemic virus, allied to seal the policy and the national home quarantine policy, so the lack of communication with the outside world to make their children's physical and mental health problems are highlighted, Asian countries have some extreme events. Based on this, the popularity of regular children's physical and mental health testing is urgently needed, and at the same time in the school, family, community, and social aspects of cooperation form varied art intervention systems, achieve early discovery, early intervention, intervention training in a timely manner.

Visual arts as a non-drug intervention therapy, can effectively improve children's physical and mental health, and improve the ability of sick children to rehabilitation. Still, there is some relevant research that shows that training is suitable for what kind of art as a means of intervention. Some studies suggest that the intervention effect of experiment mainly case study or small sample study, although this is not contradictory to universality research conclusion, large sample is slightly compared with systematic research. At the same time, the children were treated with caution when choosing the way of art therapy. Tracking such as painting, calligraphy, clay sculpture, head-mounted 3 d interactive equipment, 3D virtual design, and visual media design software can achieve effective intervention, it is very important.

At present, there is also a view of visual art is not suitable for as a means of intervention. Among them some of the respondents thought, visual art will distract children instead, affect the rehabilitation of children, and the popularity is not enough, coupled with a lack of focus for a long time, the system of intervention, interference factors, thus deficiencies still exist in the actual intervention and controversy.

6. Conclusion

The purpose of this study was to summarize the interventions for the sick children's rehabilitation, the influence of the summary and analysis of related intervention experiences explores the meaning of regular use of visual art intervention. The study results show that based on a variety of means of visual art intervention is a positive effect on the rehabilitation of children. In the concrete implementation of the intervention, the need to fully consider the family environment, school environment, and social environment's influence on children.

Research shows that a good learning environment, family environment and social environment can promote children with various aspects ability to ascend, and can relieve the patient's mental pressure, weaken the influence on their special learning disabilities. Through the mutual influence between different forms of art creation and a full range of visual art intervention treatment, this is very important. In globalization's process, more and more new technology concept has been gradually have been proposed, metaverse concept is relying on new technology system for the Internet, with the advent of Internet's era, digital visual virtual technology has been very mature, previous VR technology and the emergence of AR technology to a great extent, enriches the art form of digital visual media, but also increased art intervention's new methods, but the combined with relatively few cases with metaverse concept, the author therefore thinks that this is a new research focus in the future, and the development and the digital media industry of medical industry of children is of great significance. In addition, for different types of children with disabilities the intervention of the experience of theory research is insufficient, so we in the art intervention treatment of theory research and practice is still a long way to go.

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