

Impact Of Multimedia Package On Motor Deficiencies Among Children With Autism Reference To Family

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ABSTRACT

A large number of children with autism are observed with btosome motor deficiencies. Fine and gross motor deficiencies can lead to low self-esteem, underachievement, frustration, and stress in affected children. The main aim of this research is to multimedia systematically package training prog that rams given to affected children with autism to improve the fine and gross motor deficiencies in children and to assess the effectiveness of multimedia packages. Some systematic reviews were collected for the evidence. The experimental method was applied for this research. A single-group pre-test and post-test group design were used. The sample consists for the experiment were 32 children with autism (8–15) available in Rejoice School for Autism and Developed mentally delayed Nagercoil. The observation method was followed. The scale on motor deficiencies among children with autism about family was developed and validated by the investigator. The result shows the effective use of multimedia packages in reshaping the motor deficiencies among children with autism under the categories mild, moderate, and severe. The effect of the training session was maintained as a follow-up.

Keywords: Autism, Motor Deficiencies, Multimedia, Impact

INTRODUCTION

The study's main objective was to rectify the motor deficiencies among children with autism by using a multimedia package. The child with autism who have an intellectual disability has the most severe motor issue in them. Motor problems in certain autistic children may be attributed to the difference in the interconnection between brain regions. The affected child with autism may struggle academically due to difficulties mastering fine and gross motor deficiencies. From childhood onwards, they have motor deficiencies. It will stunt the children in physical activities such as sports, limiting their opportunities to interact with other children and potentially hampering social development. The simple daily task for children with typical motor deficiencies, such as buttoning a shirt, writing, walking, sitting, and eating, can be quite challenging for those who lag in motor functioning. Delays with these can cause stress in the home environment when getting ready for school in the morning. Children with a good level of motor deficiencies develop activities of daily living with greater resourcefulness and independence. By increasing their comprehension of the significance of a child's motor skill development, parents may assist their children much more. A Multimedia package is simply the advancement of old technology with new additions and modifications for good results. It has been shown that many children with autism enjoy the multimedia package. Since visuals are their first language and words are their second, children with ASD learn best from visual media.

CHANGES IN THE SPECIAL EDUCATION SYSTEM

These days there are more changes in the field of special education. Some technologies were introduced to inspire their abilities. The goal of using technology in special education is to allow children to study in a way that suits their unique learning styles and constraints. Technological progress has broadened the scope of the educational system, and the changes

have resulted in some evident and tangible good outcomes. Schools are becoming more popular as public awareness grows. The previous approach did not enable to reduce the individual needs variations, which is now achievable with modern teaching and learning methodologies. Then also, the previous educational system could not push pupils to advance in their academic endeavors. However, the great advances in education brought about by technology open the doors to an imaginative world for students of all levels.

USES OF MULTIMEDIA PACKAGE FOR ASD

Using a multimedia package for ASD helps to break down barriers for children with autism and gives them access to the most appropriate educational programs and fundamental abilities. Properly developed software and hardware enable autistic children to get contemporary education, enhance their quality of life, social communication skills, adaptive abilities, and motor inadequacies, and properly identify the emotions of others. It may be used for education, therapy planning, assessment by parents, special schools, and therapeutic facilities.

CHILDREN WITH AUTISM

Autism is a neurological developmental disorder affecting approximately 1 in 110 births (Centres for Disease Control and Prevention 2010), believed to have a genetic basis, affecting the brain's ability to process and interpret varying types of information. Deficits can occur in a constellation of behaviors but generally fall into three broad areas:

1. Social Interaction
2. Verbal and Non-verbal Communication
3. Restrictive patterns of interest and behavior

The symptoms of autism often appear after the age of three. Hence autism is classified as a developmental disorder that lasts a lifetime. Autism, in reality, has a significant influence on a child's development. Children with autism face major communication difficulties. Beginning

in early life, they lack appropriate expressive language. When the parent approaches the child, they may not engage in eye contact or grin and interact. Later, the variety of usual play behaviors, such as spontaneous pretend play and sharing interests with others, is notably diminished. They have difficulty understanding and relating to the views of others.

When writing about a group of children who demonstrated similar behavior patterns in the 1940s, American psychiatrist Leo Kanner coined the term "autism." More than 80 years later, autism is referred to as a pervasive developmental disorder or an autistic spectrum disorder since the range of possible deviations ranges greatly from extremely mild to considerable. Each individual is affected differently and to varying degrees. According to the American Psychiatric Association, five subgroups of pervasive developmental disorders have been identified to assist in the diagnosis of mental disorders in both children and adults: autistic disorder, Asperger syndrome, pervasive developmental disorder, childhood disintegrative disorder, and Rett's syndrome.

IMPAIRMENTS OF CHILDREN WITH AUTISM

Autism is a common developmental disorder characterized by significant communication deficits, difficulties managing attention, and cognitive, sensory, motor, and emotional abnormalities. Autism is regarded as a distinct disorder since it is more common than Down syndrome, cystic fibrosis, and other kinds of pediatric cancer. Autism is commonly diagnosed in childhood, prompting parents and families to experience reasonable anguish. Most professionals who work with autistic children, however, recognize that there is no cure, but we can enhance their quality of life. Therapies that claim to cure autism either lack scientific support or overstate their effectiveness in treating certain disorder components.

Autism children are not unusual and need special education services. They have particularly three heads of impairments. They are,

1. Qualitative impairment in social interaction, as manifested by at least two of the following:
 - a. Marked impairments in using multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body posture, and gestures to regulate social interaction.
 - b. Failure to develop peer relationships appropriate to developmental level.
 - c. A lack of spontaneous seeking to share enjoyment, interests, or achievements with other people.
 - d. Lack of social or emotional reciprocity.
2. Qualitative impairments in communication as manifested by at least one of the following:
 - a. Delay in or total lack of the development of spoken language,
 - b. In individuals with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others.
 - c. Stereotyped and repetitive use of language or idiosyncratic language.
 - d. Lack of varied, spontaneous make-believe play or imitative social play appropriate to developmental level.
3. Restricted repetitive and stereotyped patterns of behavior, interests, and activities as manifested by at least one of the following:
 - a. Encompassing preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus.
 - b. Inflexible adherence to specific, non-functional routines or rituals.
 - c. Stereotyped and repetitive motor mannerisms (hand or finger flapping or twisting or complex whole-body movements).
 - d. Persistent preoccupation with parts of objects.

Children with autism struggle with mental and motor coordination to meet their learning demands. Motor balance is a crucial ability in the learning process for solving logical coherence. To finish the learning process, individuals must synchronize between motor and regular mental activities. So, motor impairment is considered the most severe of children's learning disabilities.

MOTOR SKILLS OF CHILDREN WITH AUTISM

Motor skills in children with autism are often delayed, including the acquisition of fine and gross motor skills. Fine motor (holding a pencil, writing letters and numbers, cutting with scissors, tying shoes) and gross motor (walking, running, athletic coordination) developmental milestones are often more difficult for children with autism to attain in comparison to their neuro-typical peers. These delays can impact a child's ability to function daily in the school setting and at home. The difficulties that young people with this disorder face regarding motor skills development can lead to frustration, anxiety, low self-esteem, and apprehension toward learning a new skill or task.

Delays with these skills can cause stress in the home environment when getting ready for school in the mornings. The most effective way of minimizing the issues related to fine and gross motor skills with autism is for a child to participate in an occupational therapy program, a free service for eligible public school students. Occupational therapists can help children diagnosed with autism improve their fine and gross motor development through various techniques and exercises. Parents can also work with their children on these techniques in the home environment. The earlier a child with autism begins to receive assistance in strengthening fine motor skills and gross motor skills, the more likely that school, social, and daily life experiences will be easier to navigate.

GROSS MOTOR DEFICIENCIES

Gross motor delays occur when a child does not begin moving around, like rolling over, crawling, walking, etc., when they reach the right age. Gross motor skills are the abilities usually acquired during childhood as part of a child's motor learning. By the time they reach two years of age, almost all children can stand up, walk, walk upstairs and run, etc. These skills are built upon, improved, and better controlled throughout early childhood and continue in refinement throughout most of the individual's development into adulthood. These gross movements come from large muscle groups and whole-body movements. These skills develop in a head-to-toe order. The children will typically learn head control, trunk stability, and standing up and walking. It is shown that children exposed to outdoor playtime activities will develop better gross motor skills.

FINE MOTOR DEFICIENCIES

Fine motor skills are the ability to make movements using the small muscles in our hands and wrists. Fine motor skill is the coordination of small muscles in movements, usually involving the synchronization of hands and fingers with the eyes. The complex levels of manual dexterity that humans exhibit can be attributed to and demonstrated in tasks controlled by the nervous system. Fine motor skills aid in the growth of intelligence and develop continuously throughout human development.

PROMOTING MOTOR DEVELOPMENT IN CHILDREN WITH AUTISM

There are many ways to promote motor activities that are highly relevant to the learning process of children with autism. They are:

- i. Teaching remedial exercises designed to encourage improvement with letter formation, appropriate spacing between words, and a functional pencil grasp.

- ii. Working on basic fine motor skills by having the child lace on lacing cards, stack blocks, assemble nuts and bolts, and string beads.
- iii. Offering hands-on assistance when practicing tasks such as buttoning, holding utensils, and tying laces, and then fading that assistance as the child gains mastery of the skills.
- iv. Increasing arm and leg coordination with swimming and moving to music.
- v. Developing hand-eye coordination by practicing athletic skills such as catching, throwing, or kicking balls.

REVIEW OF RELATED STUDIES

Sarah (2015) evaluated the study on the impact of multimedia graphics and text on autistic learners in reading. The result shows that children with autism can benefit from reading comprehension strategies when they use graphics and text together. Keith. c (2014) determined the study using a multimedia social skills intervention to increase the social engagement of young children with an autism spectrum disorder. The findings suggest that the intervention contributed to greater engagement of children with ASD with peers during a free-play period.

Leah Ketcheson (2016) The effects of an early motor skill intervention on motor skills, levels of physical activity, and socialization in young children with autism spectrum disorder: A pilot study A repeated-measures analysis of covariance revealed statistically significant differences between groups in all three motor outcomes, locomotor ($F(1, 14)=10.07$, p partial $\eta^2=0.42$), object control ($F(1, 14)=12.90$, p Findings shed light on the importance of including motor programming as part of the early intervention services delivered to young children with an autism spectrum disorder. **Sathiyaprakash (2019)**. Use of computer-based interventions to improve literacy skills in students with autism spectrum disorders: A systematic review. His review describes the characteristics of the included studies, evaluates intervention outcomes, and appraises the certainty of evidence. This review has three main aims: (a) to evaluate and

synthesize the evidence base, (b) to inform and guide practitioners interested in the use of CBI, and (c) to stimulate and guide future research aimed at improving literacy outcomes for students with ASD.

NEED AND SIGNIFICANCE OF THE STUDY

Children with autism have weaker motor deficiencies such as writing, throwing, communicating, etc. This deficiency will affect their routine life in the environment or community. Facing this type of deficiency, the researcher found multimedia package is a specially developed system that proved beneficial for the children, which highlights the potential benefits that a multimedia system can have as a learning tool. The result of the present study will bring light hope to improve the motor deficiency of autistic children with mild, moderate, and severe disorders. With this background, the investigator wants to study the impact of the multimedia package on motor deficiencies among children with autism in the family.

OBJECTIVES OF THE STUDY

Pre-test Vs. Post-test analysis of children with mild autism disorder

- To determine whether there is any significant difference between the scores obtained by the children with mild autism disorder in pre-test and post-test concerning the nuclear family.
- To determine whether there is any significant difference between the scores obtained by the children with mild autism disorder in pre-test and post-test concerning the joint family.

Pre-test Vs. Post-test analysis of children with moderate autism disorder

- To determine whether there is any significant difference between the scores obtained by the children with moderate autism disorder in pre-test and post-test about the nuclear family.
- To find out whether there is any significant difference between the scores obtained by the children with moderate autism disorder in pre-test and post-test concerning joint family

Pre-test Vs. Post-test analysis of children with severe autism disorder

- To determine whether there is any significant difference between the scores obtained by the children with severe autism disorder in pre-test and post-test concerning the nuclear family.
- To determine whether there is any significant difference between the scores obtained by the children with severe autism disorder in pre-test and post-test concerning the joint family.

NULL HYPOTHESES OF THE STUDY

Pre-test Vs. Post-test analysis of children with mild autism disorder

- There is no significant difference between the scores obtained by the children with mild autism disorder in the pre-test and post-test concerning the nuclear family.
- There is no significant difference between the scores of children with mild autism disorder in the pre-test and post-test about joint family.

Pre-test Vs. Post-test analysis of children with moderate autism disorder

- There is no significant difference between the scores obtained by the children with moderate autism disorder in the pre-test and post-test concerning the nuclear family.
- There is no significant difference between the scores obtained by the children with moderate autism disorder in the pre-test and post-test concerning the joint family.

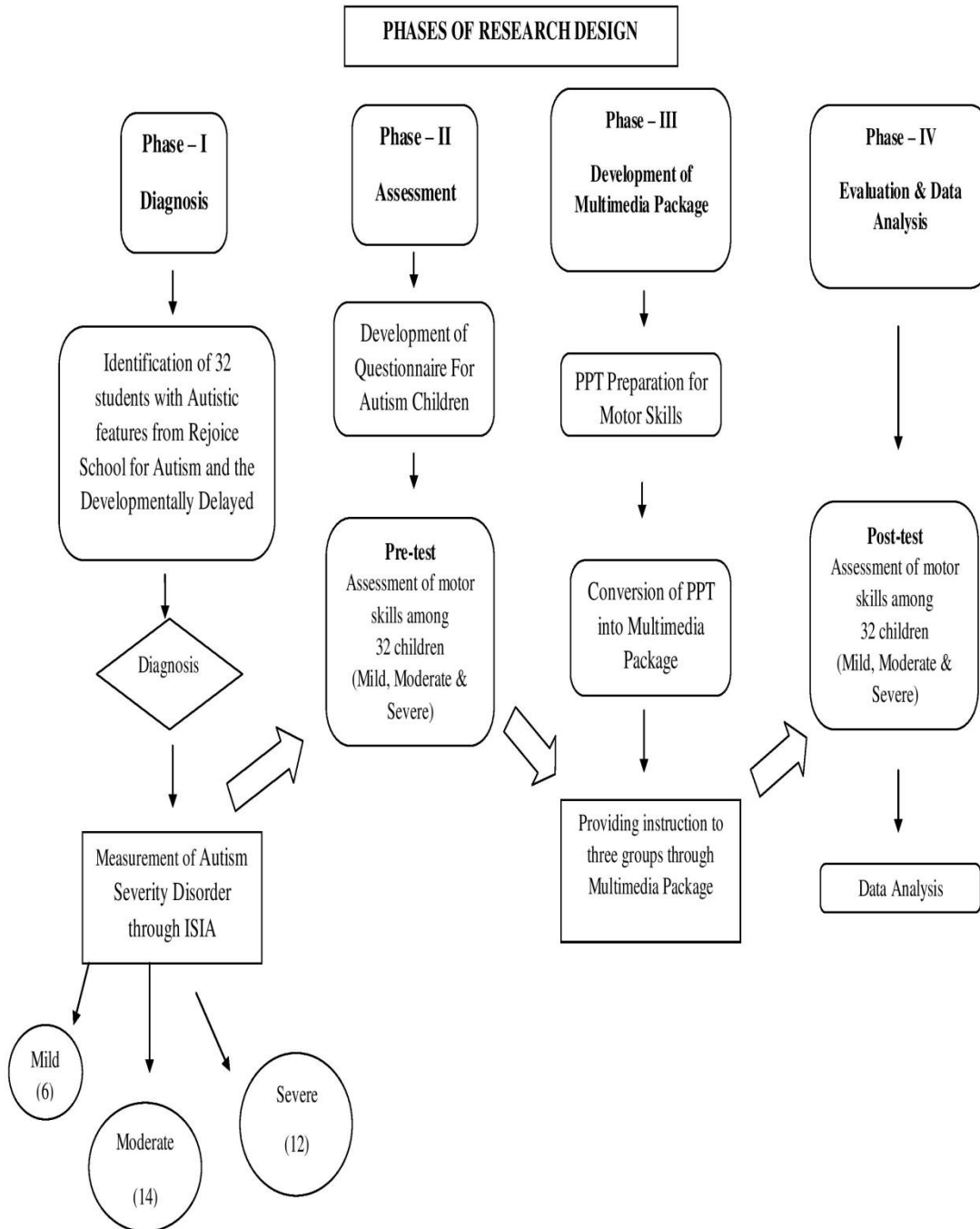
Pre-test Vs. Post-test analysis of children with severe autism disorder

- There is no significant difference between the scores obtained by the children with severe autism disorder in the pre-test and post-test about the nuclear family.
- There is no significant difference between the scores obtained by the children with severe autism disorder in the pre-test and post-test concerning the joint family.

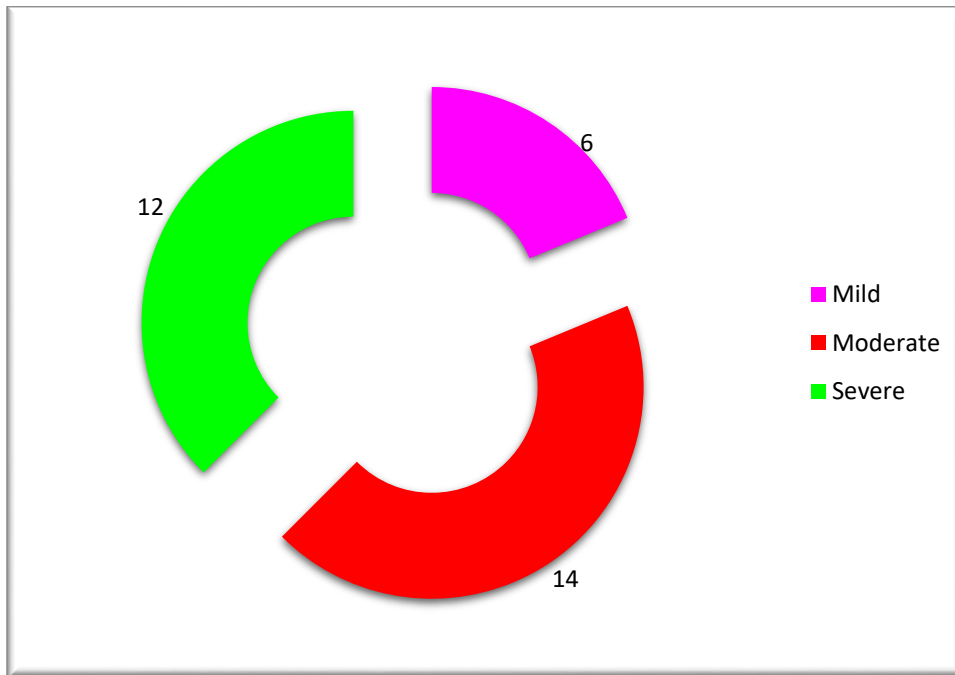
PHASES OF THE STUDY

Research is a logical process whereby new information can be generated. In carrying out research, one of the fundamental requirements is to clearly define the direction of the study, i.e., the building of a conceptual framework. The conceptual framework works like a map that sets the direction of the research study (Regoniel, 2012). The conceptual framework of the experiment ‘**IMPACT OF MULTIMEDIA PACKAGE ON MOTOR DEFICIENCIES AMONG CHILDREN WITH AUTISM REFERENCE TO FAMILY**’ included four major phases such as:

Phase I	Diagnosis Phase
Phase II	Comprehensive Assessment
Phase III	Development and Implementation of Multimedia Package
Phase IV	Evaluation & Data Analysis



SAMPLE DISTRIBUTION OF THE STUDY



STATISTICAL TECHNIQUES USED

Suitable descriptive and inferential statistical techniques were used to interpret the data to draw a more meaningful picture of the results from the collected data. In the present study, the following major techniques are used by the investigator for analyzing the data.

- i. Mean
- ii. Standard deviation
- iii. t-test

PRE-TEST VS POST-TEST ANALYSIS OF CHILDREN WITH MILD AUTISM DISORDER

Hypotheses 1:

There is no significant difference between the scores obtained by the children with mild autism disorder in the pre-test and post-test concerning the nuclear family.

Table-1

t-test for the pre-test and post-test scores of children with mild autism disorder concerning nuclear family

Motor deficiencies	Group	Mean	N	S.D.	r-value	t-value		Remarks
						C.V.	T. V	
GMS	Pre-test	13.0000	3	1.00000	0.866	13.00	4.303	S
	Post-test	17.3333	3	.57735				
FMS	Pre-test	13.3333	3	2.08167	3.212	5.212	4.303	S
	Post-test	18.0000	3	1.00000				

S - Significant at a 5% level of significance

In the above table, all the calculated ‘t’ values are greater than the table value (4.303) for df (2) at a 5% significance level in total motor deficiencies. Hence the null hypothesis is rejected. It shows a significant difference between the scores of children with mild autism disorder in the pre-test and post-test about the nuclear family. The mean scores show that the children with mild autism disorder score more in the post-test than in the pre-test concerning the nuclear family.

Hypotheses 2:

There is no significant difference between the scores obtained by the children with mild autism disorder in the pre-test and post-test concerning the joint family.

Table-2

t-test for the pre-test and post-test scores of children with mild autism disorder concerning joint family

Motor deficiencies	Group	Mean	N	S.D.	r-value	t-value		Remarks
						C.V.	T. V	
GMS	Pre-test	14.3333	3	.57735	0.500	10.00	4.303	S
	Post-test	17.6667	3	.57735				
FMS	Pre-test	14.6667	3	.57735	-0.50	8.00	4.303	S
	Post-test	17.3333	3	.57735				

S - Significant at a 5% level of significance

In the above table, all the calculated ‘t’ values are greater than the table value (4.303) for df (2) at a 5% significance level in total motor deficiencies. Hence the null hypothesis is rejected. It shows a significant difference between the scores of children with mild autism disorder in the pre-test and post-test concerning the joint family. The mean scores show that the children with mild autism disorder score more in the post-test than in the pre-test concerning the joint family.

PRE-TEST VS POST-TEST ANALYSIS OF CHILDREN WITH MODERATE AUTISM DISORDER

Hypotheses 3:

There is no significant difference between the scores obtained by the children with moderate autism disorder in the pre-test and post-test concerning the nuclear family.

Table-3

Correlated t-test for the pre-test and post-test scores of children with moderate autism disorder concerning nuclear family

Motor Skills	Group	Mean	N	S.D.	r-value	t-value		Remarks
						C.V.	T. V	
GMS	Pre-test	9.5833	12	2.87492	0.856	8.673	2.179	S
	Post-test	13.5000	12	1.97714				
FMS	Pre-test	10.1667	12	2.40580	0.108	3.717	2.179	S
	Post-test	15.6667	12	4.79267				

S - Significant at a 5% level of significance

In the above table, all the calculated ‘t’ values are greater than the table value (2.179) for df (10) at a 5% significance level in total motor skills and all the dimensions. Hence the null hypothesis is rejected. It shows a significant difference between the scores obtained by the children with moderate autism disorder in the pre-test and post-test concerning the nuclear family. The mean scores show that the children with moderate autism disorder score more in the post-test than in the pre-test concerning the nuclear family.

Hypotheses 4:

There is no significant difference between the scores obtained by the children with moderate autism disorder in the pre-test and post-test concerning the joint family.

Table-4

Correlated t-test for the pre-test and post-test scores of children with moderate autism disorder concerning joint family

Motor Skills	Group	Mean	N	S.D.	r-value	t-value		Remarks
						C.V.	T. V	
GMS	Pre-test	7.5000	2	3.53553	1.000	3.677	12.71	NS
	Post-test	13.0000	2	1.41421				
FMS	Pre-test	10.5000	2	4.94975	1.000	1.677	12.71	NS
	Post-test	13.0000	2	2.82843				

NS -Non-Significant at a 5% level of significance

In the above table, all the calculated ‘t’ values are lesser than the table value (12.71) for df (1) at a 5% significance level in total motor skills and all the dimensions. Hence the null hypothesis is accepted. It shows no significant difference between the scores obtained by the children with moderate autism disorder in the pre-test and post-test concerning the joint family.

PRE-TEST VS POST-TEST ANALYSIS OF CHILDREN WITH SEVERE AUTISM DISORDER

Hypotheses 5:

There is no significant difference between the scores obtained by the children with severe autism disorder in the pre-test and post-test about the nuclear family.

Table-5

t-test for the pre-test and post-test scores of children with severe autism disorder in a nuclear family

Motor deficiencies	Group	Mean	N	S.D.	r-value	t-value		Remarks
						C.V.	T. V	
GMS	Pre-test	2.2857	7	.48795	0.730	5.284	2.447	S
	Post-test	3.8571	7	1.06904				
FMS	Pre-test	1.2857	7	.75593	0.398	9.500	2.447	S
	Post-test	4.0000	7	.57735				

S - Significant at a 5% level of significance

In the above table, all the calculated ‘t’ values are greater than the table value (2.447) for df (6) at a 5% significance level in total motor deficiencies. Hence the null hypothesis is rejected. It shows a significant difference between the scores obtained by the children with severe autism disorder in the pre-test and post-test about the nuclear family. The mean scores show that the children with severe autism disorder score more in the post-test than in the pre-test concerning nuclear family

Hypotheses 6: There is no significant difference between the scores obtained by the children with severe autism disorder in the pre-test and post-test concerning the joint family.

Table-6

Correlated t-test for the pre-test and post-test scores of children with severe autism disorder concerning joint family

Motor deficiencies	Group	Mean	N	S.D.	r-value	t-value		Remarks
						C.V.	T. V	
GMS	Pre-test	1.8000	5	1.30384	0.490	3.255	2.776	S
	Post-test	4.6000	5	2.19089				
FMS	Pre-test	1.4000	5	1.14018	0.160	3.666	2.776	S
	Post-test	4.8000	5	1.92354				

S - Significant at a 5% level of significance

In the above table, all the calculated ‘t’ values are greater than the table value (2.776) for df (5) at a 5% significance level in total motor deficiencies. Hence the null hypothesis is rejected. It shows a significant difference between the scores obtained by the children with severe autism disorder in the pre-test and post-test concerning the joint family. The mean scores show that the children with severe autism disorder score more in the post-test than in the pre-test concerning the joint family.

FINDINGS OF THE STUDY

Pre-test vs. post-test analysis of children with mild autism disorder

- There is a significant difference between the scores obtained by the children with mild autism disorder in the pre-test and post-test concerning the nuclear family. The mean scores show that the children with mild autism disorder score more in the post-test than in the pre-test concerning the nuclear family.

- There is a significant difference between the scores of children with mild autism disorder in the pre-test and post-test concerning the joint family. The mean scores show that the children with mild autism disorder score more in the post-test than in the pre-test concerning the joint family.

Pre-test vs. post-test analysis of children with moderate autism disorder

- There is a significant difference between the scores obtained by the children with moderate autism disorder in the pre-test and post-test concerning the nuclear family. The mean scores show that the children with moderate autism disorder score more in the post-test than in the pre-test concerning the nuclear family.
- There is no significant difference between the scores obtained by the children with moderate autism disorder in the pre-test and post-test concerning the joint family.

Pre-test vs. post-test analysis of children with severe autism disorder

- There is a significant difference between the scores obtained by the children with severe autism disorder in and about the nuclear family. The mean scores show that the children with severe autism disorder score more in the post-test than in the pre-test about the nuclear family.
- There is a significant difference between the scores obtained by the children with severe autism disorder in the pre-test and post-test concerning the joint family. The mean scores show that the children with severe autism disorder score more in the post-test than in the pre-test concerning the joint family.

INTERPRETATION OF THE STUDY

The present study shows that fine and gross motor deficiencies have decreased by using the multimedia package. The children with autism categorized under mild, moderate, and severe disorder scored more in the post-test than in the pre-test about the family. Due to the

effectiveness of the multimedia package, children with autism perform better in overcoming their motor deficiency. The school, teachers, and parents of the children help the children to rectify their deficiencies by using the multimedia package.

RECOMMENDATIONS OF THE STUDY

Based on the findings of the present study, the investigator suggested the following recommendations,

- The multimedia package should be more colorful and have excellent sounds, which should attract the attention of autistic throughout the session.
- Independent self-learning activities want to be given to children with autism.
- After watching the video, some practical work may be given.

CONCLUSION

The importance of using current technology as an educational tool will help kids with ASD to learn and reshape their lifestyle stlifestylewill become stress-free. Autistic kids have particular learning problems from non-autistic classmates. Because of their unique speech, communication, behavioral difficulties, and motor deficiencies, they have learning characteristics that differ from those of non-autistic pupils. Technology has also assisted many autistic kids in learning necessary abilities critical to their survival and daily activities. The research supports using computer-based intervention to teach reading comprehension and communication skills and improve motor deficiencies in autistic youngsters. Applied technology to deliver better education to autistic children and young people by supporting autism education curricula or personalized education programs using current technology approaches, particularly those tailored to their limitations and requirements. Multimedia-based software, as well as capturing children's interest by encouraging software that may prolong engagement and improve motor skills for cooperative play. When they engage with the video,

the children are eager to play, especially when it incorporates technology. This program may be used to assist autistic children while also assisting them in improving their motor deficits.

The present study's findings indicated the effective use of the multimedia package in learning motor deficiencies among autistic children with mild, moderate, and severe disorders. So, the importance of the present study supports the effectiveness of using multimedia package intervention to teach motor deficiencies to autistic children. Application of multimedia technology to better education to autistic children supporting autistic education curriculum or individualized instruction with the use of multimedia technology methods and strategies, especially according to their disabilities and fitting their own needs.

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