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Effect of multimedia instruction on expressive language skills among children with autism spectrum disorder

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Abstract

This paper examined Effect of Multimedia Instruction on Expressive Language Skills among Children with autism spectrum disorder. The data was collected from special school in Nagpur district. 15 Children with autism spectrum disorder randomly selected for the study. The test was developed by the researcher himself. The study revealed that the Multimedia Instruction significantly effect on the Expressive Language skills, Pragmatic Language, Vocabulary, Receptive Language, Social Communication and Non -Verbal Communication of ASD students. It can be concluded that the Multimedia Instruction is superior to conventional mode of instruction in terms of Expressive Language Skills among Children with autism spectrum disorder.

Keywords: Multimedia instruction, expressive language skills, children with autism spectrum disorder

Introduction

In one's life, education is an important concern. It is the key to a successful future and to the numerous opportunities we come across in our lives. For an individual, education has many advantages. It not only enlightens the mind but also enhances the thought process of a person. This makes it possible for students to qualify for jobs or pursue higher education. Moreover, education develops the personality, thoughts, and social skills of humans. It not only prepares an individual for various experiences and circumstances in their life but also makes them hold a unique significance in society. It increases the knowledge of a person and provides them with confidence that is going to help them through their life. Education is important for people of all age groups. People of any age group can get an education anytime and anywhere; education has no limitations if you want to have it you can get it anytime and from anywhere. When you talk about education, it not only makes you a self-dependent person, but it will cultivate such values in you that will help you be a respected person in society.

According to John Dewey "Education is the development of all those capacities in the individual which will enable him to control his environment and fulfill his responsibilities.

A disability is any condition of the body or mind (impairment) that makes it more difficult for the person with the condition to do certain activities and interact with the world around them.

Autism Spectrum Disorder: Autism is a complex neurodevelopment disorder characterized by qualitative impairments in social interaction and communication, with restricted, repetitive, stereotyped patterns of behavior, interests, and activities. These behaviors manifest along a wide spectrum and commence before 36 months of age. Ascertaining whether the child's specific behaviors meet the Diagnostic and Statistical Manual of Mental Disorders-IV-Revised criteria makes the diagnosis of autism. Its etiology is still unclear but recent studies suggest that genetics plays a major role in conferring susceptibility. Recent neuro-imaging research studies indicate that autism may be caused by atypical functioning in the central nervous system, particularly in the limbic system: the amygdala and hippocampus. In a third of autistic children, language and/or social skills loss occurs during the second year of life, usually between 15 and 21 months of age. Comorbidity with mental retardation, epilepsy, disruptive behaviors, and learning difficulty is not uncommon. Although there is currently no known cure for autism there is evidence to suggest that early intervention therapy can improve the functioning of autistic children. Judicious use of psychotropic drugs is necessary to manage associated aggression, hyperactivity, self

-mutilation, and temper tantrums; but drugs are not a substitute for behavioral and educational interventions. The family physician can play an important role in detecting autism early, coordinating its assessment and treatment, counseling the parents and classroom teacher, and monitoring the child's progress on a long-term basis.

Multimedia Instruction: Multimedia is an interactive media and provides multiple ways to represent information to the user in a powerful manner. It provides interaction between users and digital information. It is a medium of communication. Some of the sectors where multimedia is used extensively are education, training, reference material, business presentations, advertising, and documentaries.

Multimedia is a representation of information attractively and interactively with the use of a combination of text, audio, video, graphics, and animation. In other words, we can say that Multimedia is a computerized method of presenting information by combining textual data, audio, visuals (video), graphics, and animations. Examples: E-Mail, Yahoo Messenger, Video Conferencing, and Multimedia Message Service (MMS).

Communication: Communication is an act of conveying meanings from one entity to another with the use of understood signs, symbols, and rules. Communications skills, in a nutshell, are a set of activities you make to give and receive various kinds of information. Some examples of communicating are expressing your viewpoint on a topic, updating new additions to your project, expressing feelings, etc.

Language

A language is a structured system of communication. The structure of a language is its grammar and the free components are its vocabulary. Languages are the primary means of communication of humans and can be conveyed through speech (spoken language), sign, or writing. Many languages, including the most widely-spoken ones, have writing systems that enable sounds or signs to be recorded for later reactivation. Human language is unique among the known systems of animal communication in that it is not dependent on a single mode of transmission (sight, sound, etc.), is highly variable between cultures and across time, and affords a much wider range of expression than other systems.

Expressive Language Skills

Expressive language skills can be defined as the skills necessary to form thoughts and express them using appropriate word and grammar combinations. This may also include gesturing and facial expressions, especially in early childhood. Children who experience difficulty with expressive language skills may be delayed in speaking, avoid speaking in long sentences, and have a smaller vocabulary than other children their age. In conversation, a child with expressive language difficulties may struggle to recall certain words that they want to use and use an ambiguous term, like "stuff" or "thing", instead of a specific word or phrase. At school, a child with expressive language difficulties may appear as though he or she does not understand class content due to difficulties in communicating the material. It is important to remember that children with expressive language deficits do not

necessarily have difficulty with comprehension but do struggle with organizing their thoughts into complex sentences. Autism spectrum disorders expression is the domain of growth-nervous disorders which contains a dedicated diagnosis of autism, Asperger syndrome, and pervasive growth disorders that haven't been identified in other species (Mulloy A, Lang R, Reilly M, Sigafos L. Gluten). Autism spectrum disorders are part of 5 growth – nervous disorders set that contains primary defects in social skills and interactions, relationships, limited interests, and standard behavior templates. One of the special groups who have a lot of problems with communication skills is autistic students. In autistic children, the growth and formation of communicational skills have many defects and limitations which need instructional and therapeutic intervention (Gray DE. and Ingersoll B, Schreibman L.). Without social competence, people experience isolation and depression. Deficits in social reciprocity, emotional expression, and joint attention are seen in very young children with ASD; these deficits impede early learning (Scott J, Baldwin W). and continue into.

Methodology of Research Study

Types of Research Method

This research is applied research in which the quasi-experimental pattern is used. The statistical population is all the autistic girls and boys - students who are at school student in special institutes in Nagpur. Failure to recognize this type of disorder and refusing or rejecting parents to enroll their students in special centers is an important factor that shows their participants are low. Considering the small size of the participants, the sample of this study involved five school students from Nagpur selected randomly and they were divided into one experimental group of 15 Boys and Girls. To observe research ethics and the subject rights and based on volunteering participation, the present study shows that information included was related to research purposes. The inclusion criteria of the research involve students who have mild intellectual (Below 69 and higher than 34) and have one type of autism spectrum disorder. Exclusion criteria include students with multiple disabilities and students who are below 69 IQ.

Objectives of the study

Ø To assess the effectiveness of multimedia instruction on the Expressive Language skills of ASD students.

The hypothesis of the Research Study

- 1) There would be a significant effect of Multimedia instruction on the Expressive Language skills of ASD students.
- 2) There would be a significant effect of Multimedia instruction on the Pragmatic Language of ASD students.
- 3) There would be a significant effect of Multimedia instruction on the Vocabulary of ASD students.
- 4) There would be a significant effect of Multimedia instruction on the Receptive Language of ASD students.
- 5) There would be a significant effect of Multimedia instruction on the Social Communication of ASD students.
- 6) There would be a significant effect of Multimedia instruction on the Non -Verbal Communication of ASD

students.

Variables of Research Study

Independent Variable – Multimedia instruction

Dependent Variable- Expressive Language skills

Tools of Research Study

Test prepared for Expressive Language – Pre-Test, Post Test
Video Presentation – prepared on Expressive Language skills

Analysis and Interpretation

Variable	Sample	Statistics	Scores before multimedia instruction	Scores after multimedia instruction
Expressive Language	ASD students (15)	Mean score	22.6	33.40
		S.D	2.66	1.88
		Calculated Z- Value	3.42	significant
Pragmatic Language	ASD students (15)	Mean score	4.93	6.93
		S.D	.883	.798
		Calculated Z- Value	3.57	significant
Vocabulary	ASD students (15)	Mean score	4.93	6.86
		S.D	1.162	.639
		Calculated Z- Value	3.46	significant
Receptive Language	ASD students (15)	Mean score	4.60	7.00
		S.D	1.121	.925
		Calculated Z- Value	3.48	Significant
Social Communication	ASD students (15)	Mean score	4.13	6.06
		S.D	.351	.593
		Calculated Z- Value	3.62	Significant
Non -Verbal Communication	ASD students (15)	Mean score	4.06	6.53
		S.D	.258	.516
		Calculated Z- Value	3.49	Significant

Inferences

Table reveals the effect of Multimedia instruction approach on Expressive Language skills of Children with autism spectrum disorder of experimental group. The students of experimental group obtained z- value 3.42 respectively. It is more than the critical value 2.58 significant at $\alpha=0.05$ levels respectively. Thus the hypothesis “There would be a significant effect of Multimedia instruction on the Expressive Language skills of ASD students “is accepted. The Multimedia instruction approach appears more to the learners and more challenging to study in the classroom. From the table given above it can be noted that the mean of the scores obtained in the pre-test is 22.6 The mean of the post-test scores was 33.40. Thus though there is an increase in the mean of the scores obtained in the post-test. Multimedia instruction can increase Expressive Language skills of Children with autism spectrum disorder by activating and directing behavior towards successful attainment of some goals.

Table reveals the effect of Multimedia instruction approach on Pragmatic Language of Children with autism spectrum disorder of experimental group. The students of experimental group obtained z- value 3.57 respectively. It is more than the critical value 2.58 significant at $\alpha=0.05$ levels respectively. Thus the hypothesis “There would be a significant effect of Multimedia instruction on the Pragmatic Language of ASD students “is accepted. The Multimedia instruction approach appears more to the learners and more challenging to study in the classroom. From the table given above it can be noted that the mean of the scores obtained in the pre-test is 4.93 The mean of the post-test scores was 6.93. Thus though there is an increase in the mean of the scores obtained in the post-test. Multimedia instruction can increase Pragmatic Language of Children with autism spectrum disorder by activating and directing behavior towards successful attainment of some goals.

Table reveals the effect of Multimedia instruction approach

on Vocabulary of Children with autism spectrum disorder of experimental group. The students of experimental group obtained z- value 3.46 respectively. It is more than the critical value 2.58 significant at $\alpha=0.05$ levels respectively. Thus the hypothesis “There would be a significant effect of Multimedia instruction on the Vocabulary of ASD students “is accepted. The Multimedia instruction approach appears more to the learners and more challenging to study in the classroom. From the table given above it can be noted that the mean of the scores obtained in the pre-test is 4.93 The mean of the post-test scores was 6.86. Thus though there is an increase in the mean of the scores obtained in the post-test. Multimedia instruction can increase Vocabulary of Children with autism spectrum disorder by activating and directing behavior towards successful attainment of some goals.

Table reveals the effect of Multimedia instruction approach on Receptive Language of Children with autism spectrum disorder of experimental group. The students of experimental group obtained z- value 3.48 respectively. It is more than the critical value 2.58 significant at $\alpha=0.05$ levels respectively. Thus the hypothesis “There would be a significant effect of Multimedia instruction on the Receptive Language of ASD students “is accepted. The Multimedia instruction approach appears more Multimedia to the learners and more challenging to study in the classroom. From the table given above it can be noted that the mean of the scores obtained in the pre-test is 4.60 The mean of the post-test scores was 7.00. Thus though there is an increase in the mean of the scores obtained in the post-test. Multimedia instruction can increase Receptive Language of Children with autism spectrum disorder by activating and directing behavior towards successful attainment of some goals.

Table reveals the effect of Multimedia instruction approach on Social Communication of Children with autism spectrum disorder of experimental group. The students of

experimental group obtained z- value 3.62 respectively. It is more than the critical value 2.58 significant at $\alpha=0.05$ levels respectively. Thus the hypothesis "There would be a significant effect of Multimedia instruction on the Social Communication of ASD students" is accepted. The Multimedia instruction approach appears more Multimedia to the learners and more challenging to study in the classroom. From the table given above it can be noted that the mean of the scores obtained in the pre-test is 4.13 The mean of the post-test scores was 6.06. Thus though there is an increase in the mean of the scores obtained in the post-test. Multimedia instruction can increase Social Communication of Children with autism spectrum disorder by activating and directing behavior towards successful attainment of some goals.

Table reveals the effect of Multimedia instruction approach on Non -Verbal Communication of Children with autism spectrum disorder of experimental group. The students of experimental group obtained z- value 3.49 respectively. It is more than the critical value 2.58 significant at $\alpha=0.05$ levels respectively. Thus the hypothesis "There would be a significant effect of Multimedia instruction on the Non -Verbal Com of ASD students" is accepted. The Multimedia instruction approach appears more Multimedia to the learners and more challenging to study in the classroom. From the table given above it can be noted that the mean of the scores obtained in the pre-test is 4.06 The mean of the post-test scores was 6.53. Thus though there is an increase in the mean of the scores obtained in the post-test. Multimedia instruction can increase Non -Verbal Communication of Children with autism spectrum disorder by activating and directing behavior towards successful attainment of some goals.

Conclusions

Multimedia instruction can have a positive effect on expressive language because it engages learners through multiple senses, such as visual, auditory, and kinesthetic modalities. When learners are exposed to multimedia materials, they are more likely to remember or recall information, as it is presented in different ways and through different channels.

For example, a multimedia lesson on vocabulary may include pictures or videos to explain the meaning of new words, audio recordings of the words being pronounced, and interactive activities that allow learners to practice using the words in context. By experiencing the content in different ways, learners are more likely to remember the new vocabulary and be able to use it in their own expressive language.

Moreover, multimedia instruction can provide learners with more opportunities to relate to concrete material, which can help them develop their expressive language skills. Interactive activities, such as quizzes, games, and simulations, can encourage learners to use language to express their thoughts and ideas.

On the whole, multimedia instruction can have an effect on expressive language by engaging learners through multiple senses, providing them with more opportunities to interact with concrete material, and offering representations of language use in different situations.

Multimedia instruction can be particularly effective for children with Autism Spectrum Disorder (ASD) who have challenges with communication and language development.

There are a few reasons why multimedia instruction may influence expressive language in children with ASD.

Suggestions for improving Expressive language in children with Autism

Communication, social interaction, and behavior. Children with ASD often experience difficulties with expressive language, which can impact their ability to communicate effectively, build social relationships, and succeed academically.

Encourage communication: Encourage the child to communicate or speak, even if it is just through simple gestures or sounds. Appreciating the efforts of the child can motivate him/her to continue communicating and develop their language skills.

Use visual aids: Visual aids can help children with Autism Spectrum Disorder (ASD) understand and learn new words. Use pictures, flashcards, or other visual aids to help children associate words with their meanings.

Simplify language: Use simple and clear language to help the child understand what is said to him/her. Avoid using complex language or idiomatic expressions that may confuse them.

Repeat and reinforce: Repeat words or phrases frequently to help the child learn and remember them. Reinforce their language skills by reinforcing their efforts and providing constructive feedback.

Practice turn-taking: Encourage the child to take turns in conversations. This can help them learn to listen and respond properly in social situations.

Engage in play: Participate child in play activities that involve communication, such as pretending to cook together or playing with puppets. This can help them develop their language skills in a fun and interactive way.

Seek professional help: Consult with a speech therapist or other professional who specializes in working with children with Autism Spectrum Disorder (ASD). They can provide targeted interventions and strategies to help improve a child's language skills.

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