ASSISTIVE TECHNOLOGY FOR CHILDREN WITH AUTISM SPECTRUM DISORDERS IN INCLUSIVE CLASS ROOM

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Abstract

The Autism Spectrum Disorder (ASD) is one of the most prevalent developmental disorders (PDDs). The lack of social contact and cognitive dysfunction involve severe deficits in ASD children (Faras, Ateeqi, & Tidmarsh, 2010). Autism is a neurodevelopment disorder with major social and communication impairments (Dawson, 2008). There may also be a relative focus on child effects in autism as a result of problems related to child's behavior mainly due to the child's condition for development. Behavioral problems in autism are common (Mcclintock, Hall, & Oliver, 2003) and behavioral problems can generally be caused by autism-related rigidity and/or conditions specific to autism. Assistive technology (AT) will help the student's compensatory and corrective approaches. It could be compensatory when a pupil receives a simulated version of the book in order to prevent a reading question, not to learn how to read. (Thiyagu, 2014). Whether the student listens to the book or has a machine reading the text in scanned or digital format and attempts to learn new words, this is a proactive technique that strengthens areas of deficits. Both methods are worthwhile. Burnout can only occur by using the corrective approach (sometimes with little advantage). Discouraged students benefit more directly from approaches to common issues (Ibid). AT can assist students with learning disabilities to read, write and spell. Research shows that assistive technology can help these students not only through their academic pursuits, but also to obtain and maintain earnings (Hasselbring & Bausch, 2005). The present investigation tries to suggest the assistive technologies for the autism spectrum disorder in inclusive class room.

Key words: Inclusive education, Assistive technology, Remedial approach, Children with cognitive impaired students

1. INTRODUCTION

Childhood autism is characterised by the early onset delay and deviation in three critical areas of development: the ability to form social relationships and to share interest and emotions, the use of language and communication, both verbal and non-verbal, and the presence of often severely incapacitating ritualistic tendencies including a highly restrictive, stereotyped, repetitive behavioural repertoire. Effective social and educational development can lead to problem conduct, such as property killing, aggression, self-harm, and temper tanning for most kids with autism (Horner, 2000). According to National Autistic Society, UK (2015) one in every 100 people suffers from autism in UK and USA it is estimated that 1 in every 68 people suffer from autism. In India close to 15 million people are suffer from autism spectrum disorders. Autism means self-isolation. It includes an individual's capacity to retreat into a private, inner world. Autistic processes are characterized by a lack of responsiveness to other people, affect isolation and un relatedness to others, and subsequently a communication failure. There is an insistence on sameness, orderliness and an obsessive need to structure the world. This may find an expression in pre-occupation with mechanical objects and other cianimste substitutes instead of humans. Evidence indicates that adaptive behavior is closer to social interaction.

Many of the adaptive behavior findings relating to ASD have been derived to date from studies using heterogeneous samples (Lopata, et al., 2013). Well-developed abilities in adaptive behavior are important to the independent function. Adaptive behavior portrays the usual everyday success and the desire to turn the cognitive capacity into real-world know-how (Sparrow et al. 1984). Adaptive behavior involves daily, independently developed skills, such as effective communication with others, community involvement and the development of meaningful relationships (Klin et al.2007). AT can assist students with learning disabilities to read, write and spell. Research shows that assistive technology can help these students not only through their academic pursuits, but also to obtain and maintain earnings (Hasselbring & Bausch, 2005). The present investigation tries to suggest the assistive technologies for the autism spectrum disorder in inclusive class room.

2. REVIEW OF LITERATURE

Assistive technology can be defined as any product, equipment or system that helps to circumvent, work or compensate people for disabilities in the intellectual sphere. The term "assistive technology" can be split into two main groups: hardware and software. Hardware is the actual device. Type recorders and computers, for example, are two common hardware types. The hardware includes the main processing unit, the monitor (the screen) and the internal circuit boards on a computer. On the other hand, software refers to programs running on computers that tell computers what to do (Wyne, et al., 2016). The goal of assistive technology is to tackle, and not repair, specific deficits. It helps people with different learning outcomes to achieve their full potential. However, assistive technology will form part of the entire system to support people with learning disabilities. Supporting and adaptive technology does not "heal" a particular learning impairment. These tools compensate rather than remedy the intelligence and knowledge of a person with an ID. Suitable technology is a tailor-made implementation for a person with an ID. Tests and errors may be necessary if a specific individual is to find a set of appropriate tools and techniques. In order to determine what works, ideally a person with an ID will be a major player in selecting his or her technology (Hoppestad, 2007). Upon collection of fundamental resources and techniques they can be "tested," discarded, adapted and/or refined. The present study seeks to show assistive technologies in inclusive classrooms for autism spectrum disease based on the specific characteristics and limitations of children ASD.

According to Stasolla, Boccasini, Perilli, Damiani, & Albano (2015) The AT includes any devices, equipment or part that promotes new skills, enhances existing (i.e. adaptive) behaviors, or reduces the negative impacts from disabilities on the day-to-day operation. For example, a child may have a complex program based on a computer that improves his / her request and choice, or may exchange photos or cards for communication purposes. Regardless of their complexity, AT concentrates on improving the independence and self-determination of participants, with beneficial effects on their quality of life (Ibid). Children with autism-spectrum disorders (ASD) can be considered privileged beneficiaries of an AT-based program, due to their pathological and compliance-related difficulties in learning and symptoms. The monotropic interest system is used by ASD persons. This means that they want an environment with limited stimuli, stable, clear limits, controllable and text-free conditions (Murray, 1997). Thus, by comparing advantages and disadvantages for ICTs and conventional designs, the impact of ICT on children with ASD can be summed up. Table 1 defines the advantages and drawbacks in terms of cumulative use between ICT and conventional designs. For other types of diseases, ICT is now used for a long time to diagnose and assess.
4. RESEARCH METHODOLOGY

The present investigation tried to insist the focus and importance of assistive technology for the children with autism Spectrum disorders in inclusive class room. The Study mainly focussed the characteristics and constrains of children and also suggest the education and implementation strategies to for coping the situations. An observation and case sheet was designed to record the data related to the characteristics of children with ASD. The demographic data of family, socio-economic status of parents and information about siblings have been obtained from parents. Associated diseases, medical treatment and the behaviour problems of the children have been recorded. Focus group discussion were conducted among the parents, teachers and resource teacher for suggesting innovative strategies. The study conducted among the parents and teachers of children with ASD in elementary schools in Kottayam district of Kerala.

5. RESULT AND DISCUSSION

Characteristics and Constraints of Children with ASD

Students with autism spectrum disorders exhibit unusual behaviour in the classrooms. A total of 20 autistic students’ data has been collected for the study. Among them 11 students were males and 9 were females. From the 20 students 2 students are having high functioning autism and rest of the 18 have autism with mental retardation. Most of them were exhibited following common characteristics which distinguish them from the normal peer group and other differently abled students. The common characteristics shown by these students are depicted in figure 1
The study revealed that, Autistic children are severely impaired with communication skills; most of them have the tendency to repeat the phrases they hear. Their tone of speech is flat and monotonous. Some of the students have idiosyncratic speech, unusual prosody and have deficit in nonverbal communication. All these students have difficulty to initiate conversation and responding to questions. They may use words but not attach meaning to them and which leads to the use of phrases. They have very few or no friends in the classroom and always prefer to be alone rather than interacting with others. Most of the time they exhibit sign of stress and become easily frustrated which leads to behaviour problems like temper tantrums, crying, self-injuries behaviours etc. Difficulty in relating to people, unusual play with toys and objects, and resistance to being cuddled or touched. In the classroom they oblivious to others and appears to be in own worlds, also they don’t have little or no eye contact. If they need anything they use another person’s hand to reach an object or activity but they are resistance to being cuddled or touched. During classroom hour they shows repetitive motor mannerisms such as rocking, spinning, and hand flapping. Academic difficulties are common among these students but there is a wide discrepancy between the high functioning autistic students and autistic students with mental retardation. The high functioning autistic student display some unique characteristics such as calendar ability, ability to count visual things quickly, and also have telepathic ability. In the classroom they exhibit musical ability and artistic ability, they like to sing and easily capture the humming of a song. But they are having poor concentration, poor motor coordination and emotional vulnerability. Students with autism have unable to handle the unstructured times of the day such as recess, lunch, playground, gym class, extreme sense of fairness, has problems with abstract concepts and metaphors. Has little or no awareness of body in space, personal auras overly sensitive sense of smell, abilities in music, art, drawing, strong interest in technology, computers, construction etc. They have few or no friends and
does not understand give and take social interaction.

**Assistive technologies for Inclusive classroom**

Inclusive education most of the schools do not have infrastructure and learning resources for offering education to the disabled in inclusive classroom. Therefore inclusive classroom must be provided with necessary facilities and teaching learning materials. Schools should follow learner centric approaches and flexible methods. Screening of disabled children and assessment of their learning needs should be properly made. Otherwise, children with disabled has to be admitted on the basis of assessment documents produced by parents. Development of portfolio assessment shall also enhance the students’ participation and their aptitude can be ascertained.

A large range of communication impairments can occur for children with ASD. For example, a severe poor vocabulary of words, repetitive language (eg people with Asperger syndrome), look protection, confusion , disorientation and echolaly are present. These conditions may interfere extensively with everyday life and prevent these people from being integrated into real forms. Nonetheless, communication deficits will prevent them from being incorporated into the educational and community environments with detrimental impacts on their quality of life. As a result, AT-based programmes are focused on improving their communication potential. The programs sponsored in reality use either high-tech tools like laptops, I-pads, or low-technology approaches. Since the technical solution chosen can have an significant effect on the progress of the individual, it must also be rigorously individualised so that the person can interact with the outside world constructively.

Home Living - This field deals with the preparation and eating of food , clothing, cleaning, clothing, clothing, bathroom and hygiene, and home appliances. There are also I applications that help people in their home work. I-Dress for Weather, for instance, has a customizable closet and customized temperature settings to strengthen connections between clothing and the weather; My Healthy Smile provides information about buccal health and dental visits.

Community Living - This area focuses on activities such as travel, recreational / leisure, shopping and buying of goods and services, contact with members of the community, access to public buildings and so on. Examples of applications that support community-based activities include the Model Me Going Places (helps navigate challenging places), Community Sidekick (pathways people’s locations), and the Work Sampler (consolidates common words that are important for independent living).

Lifelong Learning - This area focuses on communicating with others when making educational decisions, studying practical sciences, and applying learning techniques, gaining autonomy and self-management strategy. Apps that support this dominion include Money Equivalence (teaching about money equivalents and the combination of coins and bills) and Autism / DTT Shapes (teaching basic forms using discrete experimental training technique). Examples are AT supports in this domain:

Employment - Throughout this position they can develop and apply specific skills; communicate with colleagues, managers, and coaches; and complete working tasks at appropriate speed and efficiency. Quick Cues offers a social incentive to help people cope with new situations and learn new skills. an application to promote employment.

Health and Safety: This area focuses on the use of medications, the avoidance of health and safety hazards, the provision of health services, ambulance, emergency access, nutritional diet, the continuation of health and fitness and the preservation of emotional
health. Applications that support this domain include Living Safely (a set of self-directed learning modules for 17 essential safety skills), as well as Pill O’Clock (a prompt for medication). The following are examples of AT resources that support this domain.

Social Activities - This field focuses on social interactions within and outside families, friendships, social skills, volunteer work and the creation of relationships. Examples of AT resources in social activities include: Photo Say apps (good for showing images with audio subtitles), AA Visual Schedule (for making visual schedules using real pictures) and Memory Good (a game which can train the memory of multiple players) which can help social interactions.

Protection and Advocacy - Activities in the area of defense and advocacy include self advocacy, money management, personal finance, harassment, legal responsibility, decision-making and advocacy.

6. CONCLUSION

However in India, due to the paucity of trained professionals and financial resources, a single therapist should be prepared to carry out whatever interventions are necessary in a much less elaborate fashion. At times, a single therapist should be prepared to carry out whatever interventions are necessary in a much less elaborate fashion. At times, a single therapist has the added advantage of coming to grips with a very complex situation and finding a simple solution because of the very nature of the holistic approach adopted. This helps to maintain the effectiveness of the therapy, since there are fewer instances of delays and inefficiency in holding together and streamlining elaborate networks. Apart that there is a need to that all the life skills need to be integrated in the teacher education programmes. There should be simultaneous focus on creative thinking and critical thinking, as well as, self-management and social management. These training will enhance the teachers to make a good classroom atmosphere. Assistive Technology not only spawned many ideas to be executed but also provide diversity in intervention/treatment/therapy/training for children with ASD. But the teachers can help the children with autism to improve their social, communication and cognitive abilities. Teachers can use communication boards, pencil grip materials, thin colour water pointer markers, touch screen sensors, movies and extracurricular activities through assistive technology which would enhance their socialization and communication skills.

REFERENCE


