

International Journal of Innovative Research in Science, Engineering and Technology

(An ISO 3297: 2007 Certified Organization)

Website: www.ijirset.com

Vol. 6, Issue 4, April 2017

Multimedia Technology A Boost Up for Learning Disability

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ABSTRACT: This paper focuses on the impact of Multimedia which is to be found associated with improved student outcomes and to cater the needs of children with learning disabilities. Learning disabilities are neurologically-based processing problems. It is a classification that includes several areas of functioning in which a student has difficulty learning in a typical manner.

Multimedia Technology for teaching is a strategy that comprises more than one instructional technique for teaching a particular unit. Different multimedia applications can be used to present disabled learners with visual, auditory or kinesthetic experiences thus helping them to adopt their own style of learning. Innovative use of technology can help engage students with learning disorders to learn in an enjoyable and meaningful way. Computer-based education has a very important role to play as an advanced technological instruction as it employs different instructional techniques that encourages active learning and meets the diverse needs of the learners through the use of technology in education. Educational technologies like web-based learning provide a number of opportunities to the disabled learners like self-paced instruction, flexibility, self-correction, etc. Various information and communication technologies can be used to teach the students the knowledge and skills they need in the 21st century. Different communication technologies such as Electronic learning, Mobile learning, Ubiquitous learning etc can be used to enrich, enliven or add variety to the learning of such educationally handicapped learners. Thus the variety and flexibility of different multimedia applications offer the opportunity to adapt any media-combination to cater to the diverse needs of children.

KEYWORDS: Learning disability, Dyslexia, Dysgraphia, Dyscalculia, Educational Technology, Computer-Based Education and Multimedia Technology.

I. INTRODUCTION

Education is the process of facilitating learning. It is an individual endeavor based on accumulation of knowledge that is proven through individual assessment. It is a vital tool that is used in the contemporary world to succeed. It is important because it is used to mitigate most of the challenges faced in life. The knowledge that is attained through education helps open doors to a lot of opportunities for better prospects in career growth. Multimedia helps the educational system to be much better than the traditional system. The old days of an educational institution having an isolated audio-visual department are long gone. Multimedia has all the elements that could be combined into a powerful new tool, especially in the hands of teachers and students. The use of multimedia provides an educational opportunity with the potential to improve student learning.

II. LEARNING DISABILITIES

Learning Disabilities means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, dysgraphia and dyscalculia.

Disorders not included term does not include learning problems that are primarily the result of visual, hearing of motor disabilities, of mental retardation, emotional disturbance, environmental or cultural. Children with learning

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disabilities are sometimes thought to be unprogressive or may not achieve as well as they should at their age level in school. They are usually average children who experience extreme difficulty in learning how to read or to do mathematical problems, or who have difficulty in handling a pencil, buttoning buttons, or tying shoelaces. They can be harshly teased by their classmates for clumsiness or “stupidity” and are frequently labeled as “disciplinary” problems by their teachers because they may act up in class in an attempt to blend in their lack of preparation.

NATURE OF LEARNING DISABILITY

The children with learning disabilities do not understand in similar learning ideas. They find it difficult comparing and classifying ideas or things and sorting items according to specific criteria. They find difficulty in time concepts such as facing problems in understanding today or yesterday. Their creativity and imagination is generally limited. They respond very slowly. They find it very difficult in thinking in a logical manner. They always need extra care and support.

TYPES OF LEARNING DISABILITIES

Dyslexia

Dyslexia is a reading disability. The genes and brain differences might influence a child’s chances of having dyslexia. Some possible causes of dyslexia are genes and heredity, brain anatomy and brain activity. For example, the students have trouble in reading written texts fluently. The students have to face the difficulty in learning the alphabet. They are very poor in spelling. They spell words inconstantly. People with dyslexia also reverse the order of two word or letters especially when the final, incorrect, word looks similar to the intended word.

Dysgraphia

Dysgraphia is a writing disability. The students have difficulty with forming letters and legibility. Cramping of fingers while writing short entries, odd wrist, arm or body, inconsistent form and size of letters, or unfinished letters, misuse of lines and margins, illegible handwriting, unfinished or omitted words in sentences are some of the symptoms of dysgraphia.

Dyscalculia

The students who have struggles with mathematical operations and problems may suffer from Dyscalculia. They feel it difficult in reading analog clocks. They cannot comprehend financial planning or budgeting. They find it very difficult to manage with multiplication tables. They have trouble in counting and sequencing. They confuse time, side and direction. They often forget phone numbers, maps etc. They cannot grasp quantity concepts. They are always anxious about Algebra and geometry.

Dyspraxia

Dyspraxia is a motor coordination disability and a sensory integration disorder. Students with dyspraxia are being late in sitting; standing, walking and they often fall over.

Dysphasia

Dysphasia is a language disability in which the students have difficulty with reading comprehension. The symptoms of dysphasia are language related. The students feel difficulty naming objects and people. It is very hard for them to remember words. Some of the other symptoms are difficulty in reading, writing and understanding.

Aphasia

Aphasia is a language disability. The students are unable to comprehend language, to pronounce, to speak fluently and to form words.

Non-Verbal Learning Disorder

Non-Verbal Learning Disorder can be find in children who feel delay in understanding or using spoken language. They cannot understand simple instructions. They give lengthy pauses before naming objects and colors. They have limited awareness or interest in books and feel difficulty coloring or drawing. They lack in motor

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coordination when walking, playing sports, holding a pencil or trying to tie a shoelace. They frequently lose or misplacing homework, schoolbooks or other items.

REASONS FOR LEARNING DISABILITY

The various reasons for learning disability are,

- Heredity
- Problems during pregnancy and birth
- Brain Damage or Dysfunction
- Biochemical Imbalance
- Environmental Factors

Learning Disabilities do not Occur due to the Following

- Hearings loss
- Visual disabilities
- Motor disabilities
- Mental retardation
- Emotional disturbance
- Environment
- Culture
- Economic disadvantage

III. SOLUTIONS

The students affected by learning disabilities need to get more care and support. We can help the children by giving best classroom practices. Learning disabilities are often identified by school psychologists, clinical psychologists by conducting intelligence tests, academic achievement tests, classroom performance, their social interaction and aptitude. Their assessment can be done by perception, cognition, memory, attention and language abilities. The resulting information is used to judge whether a child's academic performance is commensurate with his or her cognitive ability. They should be allowed extra time, segmented tests and less homework. Multimedia plays a vital role in helping the students affected by learning disabilities.

ROLE OF MULTIMEDIA TECHNOLOGY IN EDUCATION

Multimedia is more than multiple media. It is anything and everything that you watch and listen. It is graphics, audio, sound, text and many. This is usually recorded and played. The term refers to the storage, transmission, interchange, presentation, representation and perception of different information types such as text, graphics, voice, audio and video. It is displayed or accessed by information content processing devices such as computerized and electronic devices. In multimedia we can use being the business, school and virtual reality. It is used to denote the property of handling a variety of representation media in an integrated manner. It stores information in disks, CDs, tape, semiconductor memory and more. Second is the transmission of information carriers, such as numbers, text, sound and graphics. The image, sound, graphics, text, animation and other media together to form an organic whole, to achieve a certain function is called Multimedia. It can be conceptually divided into control systems and information. Multimedia CD-ROM is the main storage and exchange of media.

MULTIMEDIA TECHNOLOGY IN SCHOOLS

Modern education has to combine with modern technology to come with the best results. The teacher and student both can use the technology to enhance the teaching and learning strategies. Now many schools are using multimedia in teaching. This takes teaching and studying for the next level. The teachers use multimedia in line with their teaching to create an interest for children. This allows absorbing and retaining information more easily associate. They can be stimulated by all kinds of information.

Multimedia helps in addressing the needs of students with varying learning styles. This can make technology to improve teaching and learning. The multimedia projects can provide a means of actively engaging students in the

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learning process. Virtual reality is a multimedia extension. It uses imagery, sounds and animations. It is often used to describe a wide variety of applications commonly associated with immersive highly visual and 3D environments.

MULTIMEDIA TECHNOLOGY AND LEARNING DISABILITY

Different multimedia applications can be used to present disabled learners to adopt their own style of learning. The human brain learns using many senses such as sight, hearing or touch. While a lecture can be extremely informative, a lecture that integrates pictures or video images can help an individual learn and retain information much more effectively. Multimedia presentations may be viewed in person on stage, projected, transmitted, or played locally with a media player (<http://en.wikipedia.org/wiki/Multimedia>).

The use of various educational media may help to overcome the academic difficulties of children with learning disabilities. Innovations in the design and use of such materials must be encouraged so that their use makes learning enjoyable and meaningful. By choosing materials and activities suited to their level of learning and by stimulating their urge to bring out their best, teachers can help the pupils with disabilities to turn their difficulties into special opportunities to be model achievers (Kumar & Raja, 2009).

Computer-based education has a very important role to play as an advanced technological instruction. It employs different instructional techniques and meets the diverse needs of the learners through the use of technology in education. Computer-assisted instruction encourages active learning and can cater to the individual needs of many students at a time. This type of instruction produces learning experience effectively and efficiently. A good amount of information stored in the computer is made available to the learner than any other media (Mohanty, 2003).

As classrooms become more culturally diverse, it becomes imperative that differentiated instruction occur during the early school years because today's classrooms usually contain students with a wide range of abilities and varied educational backgrounds who learn at different rates and in different ways. Through virtual reality and hypermedia applications, the real world can be stimulated or brought into the classroom. As a special type of hypermedia learning system, Web-based instruction represents a non-linear instructional medium that may encourage deeper processing and cognitive flexibility in learners. The use of hypermedia may not only lead to deeper learning by encouraging trainees to think about how new information is related to existing knowledge but may be a superior medium to the extent that it offers a cluster of learning modes through text, audio, graphics, synchronous and asynchronous communication that can be tailored to individual learning styles.

Recent prominent technologies such as internet, e-mail and e-learning bring students with disabilities close to real world environments and apprenticeship training and thereby authenticate learning. Imparting teaching and learning for disabled children through distance mode of learning has numerous advantages such as improving the quality of education, enhancing the life long learning process, availability of quality information, ability of the web environment to stimulate the interest of the students, the promotion of engagement and communication between students and the tutor, the recognition of value of web-learning and e-learning etc (Kasinath, 2009). Educational technologies like web-based learning can help disabled children in overcoming severe learning problems and permit a greater number of opportunities for learners' epistemological styles, pace of learning, flexibility, self-correction and modification of learning. There is a need to create a more inclusive web-based environment as technology advances and more and more students with disabilities attend web-based classes.

Multimedia computers can present any type of auditory or visual materials including speech, text, music, animations, photographs or videos alone or in different combinations. They can link different types of representations such as pictures with sounds, oral readings with written text, videos with subtitles or any other combinations that might reinforce teaching and learning. They can also provide enormous flexibility, allowing the user to set the speed of speech, decide whether written text is also read aloud, choose the language presented in text and speech, or decide whether to repeat the presentation (http://www.neirtec.org/reading_report/report.htm). This flexibility can be valuable in presenting educational tasks to all types of learners to improve their academic skills.

ICT in schools enable all children in all walks of life to experience a range of learning through computer-based activities and well as through sources such as cameras and digital players. ICT supports with special needs in many ways such as presenting of information in different ways, promoting social interaction, personalizing learning, fostering creativity, independence in working and providing multisensory experiences. Inclusion, in its broadest sense also deals with ensuring the production of high quality educational content accessible for a wide range of learning needs and thus contents could be used in different learning environments to effectively support inclusive practices (Rijumol & Thangarajathi, 2009).

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Thus the variety and flexibility of different multimedia applications offer the opportunity to adapt any media-combination to cater to the needs of all children irrespective of their culture, lifestyles or abilities.

EDUCATIONAL CONTRIBUTIONS

Multimedia provides students with opportunities to represent and express their prior knowledge. It engages students and provides valuable learning opportunities. Multimedia applications allow students to access and interpret information, organizing their personal knowledge. It helps them to represent what they know to others. Multimedia encourages deep reflective thinking. Teachers can select multimedia programs to apply in different learning environments. It can be used as an individual learning station or tutor, or as a small group certain station where multimedia becomes the tutee.

The use of multimedia in each of the three learning environments can also be associated with specific teaching events or parts of a lesson. In developing lessons that use multimedia, the integration process can be facilitated if teachers envision in what part of the lesson they will use the technology. By following a model such as Gagne and Briggs's (1979), the teacher could demonstrate or teach with multimedia to gain attention, inform students of the objectives, stimulate recall of pre-requisite information. Similarly, in applying Hunter's (1982) model of multimedia as an individual learning research station or tutor, the teacher checks student comprehension and provides guided or independent practice, or relates a summarizing activity. The choice to use multimedia as a creation station indicates that the teacher is in the final instructional stages of a lesson and is continuing independent practice, assessing the learning and providing experiences for transfer.

IV. CONCLUSION

Multimedia has the potential to enhance instruction at all levels of instruction when sound instructional principles are applied to the selection of programs. The teachers can use educational videos, simple texts with bigger fonts, charts, graphs, drawings. They can use hands on experiments and use activity-based study tools, like role-playing or model building. The teachers must integrate into instruction as a tool, instead of just a supplement to the curriculum. Multimedia provides teachers and students with a powerful tool access a combination of media for enhancement of instructional events and learning. It provides the learner to interact with a combination of media, thereby increasing motivation, maintaining attention, stimulating cognition, and illustrating content or facts. Hence, with multimedia, teachers and students who have learning disability problems, have new potential to change the way schools are structured and the way they teach and learn. The growth in use of multimedia within the education sector has accelerated in recent years, and looks set for continued expansion in the future.

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