

# Role of Multimedia on Motivation and Knowledge Retention

A.Vijayalakshmi <sup>\*1</sup> and Dr.P.Janardhana Kumar Reddy<sup>\*2</sup>

<sup>1</sup>Ph.D Scholar, Department of Education, Bharathiar University, Coimbatore, Tamil Nadu, India

Email - mail2vijji84@gmail.com

<sup>2</sup>Associate Professor, Department of Education, Bharathiar University, Coimbatore, Tamil Nadu, India

Email - jkreddy451926@gmail.com

## ABSTRACT

Nowadays many educational institutions in under developed and developed nations are facing a lack of interest, motivation and knowledge retention in students towards classical method used in academic process. This paper presents a study to analyze the use of multimedia supporting the motivation and knowledge retention. Multimedia content to support the teaching and learning in easier method for sending and receiving the knowledge to the teachers and the students. Our multimedia packages in the form of audio and video with animation. A evaluation study was conducted with the students in order to validate the effect of our tool on motivation and knowledge retention. We can reduce the pain and strain of the study of multimedia package can be used to eliminate the barriers acquiring motivation and knowledge retention. It paves the way to increase the achievements of students. It will be helpful to improve the standard of education among the students. It will be helpful to the all the students like below average and above average.

In this topic the result show increases motivation and knowledge retention on students using multimedia content as hostile to those classical methods. Which evaluate multimedia technology as a auspicious tool to enhance the students Motivation, interest and knowledge retention and to support the learning and teaching process in education. As result show an increased knowledge retention on students using multimedia content as opposed to those following a classical course, which validates multimedia as a promising tool to improve students motivation and retention, and to support the learning and teaching process in educational contexts.

### Objectives

- To learning required knowledge and skills in students effectively adopting multimedia
- To briefly explain the features of multimedia on motivation and knowledge retention
- To explore the use of multimedia on motivation
- To explore the use of multimedia on knowledge retention
- To explore the benefits, challenges and issues of multimedia in education learning and activities

## INTRODUCTION

True learning requires the experience the more senses that are involved sound, sight, touch, emotions etc., Multimedia means that computer information can be represented through audio, video, and animation in addition to traditional media (i.e., text, graphics, drawings, images). It provides students with an alternative means of acquiring knowledge designed to enhance teaching and learning through various mediums. It is a wide concept that was used by many people in the world. In the world multimedia students are influenced by some reasons. At last multimedia can be defined as multiple media used to deliver information to user digitally. Multimedia is an important in education without technology it affects the learning process. It makes the classroom better environment for giving more information with observation of the student. Multimedia gives a new ways and new methods it creates the creativity and gives more effective so it gives interaction in the classroom. The concentration of the students does not in the traditional method so the more attention of the students get from only in the way of multimedia. The teachers should make the students get them on motivation and knowledge retention with the support of multimedia.

Multimedia can be recorded and played, displayed, dynamic, interacted with or accessed by information content processing devices, such as computerized and electronic devices, but can also be part of a live performance. Multimedia devices are electronic media devices used to store and experiences multimedia content. Multimedia is distinguished from mixed media in a art; by including audio, for example, it has a broader scope. The term “rich media” is synonymous for interactive multimedia. Motivation comes from inside an individual rather than from any external or outside rewards, such as money or grad Knowledge is the active part of the information that is processed and retained in our memory. it is always available for usage, and will not be deleted. We collect information from many sources, such as, print media and electronic media, from schools and colleges, from parents, friends and others. But we retain in our memory only that is useful for us, either for the present or for a distant future. Unless, it is retained in our memory, and uses it in time need, we can't call it knowledge.

## COMPONENTS OF MULTIMEDIA

- Multimedia involves multiple modalities of text, audio, images, drawings, animation, and video
  1. Video teleconferencing.
  2. Distributed lectures for higher education.
  3. Tele-medicine.
  4. Co-operative work environments.
  5. Searching in (very) large video and image databases for target visual objects.
  6. Augmented reality: placing real-appearing computer graphics and video objects into Scenes

## MOTIVATION

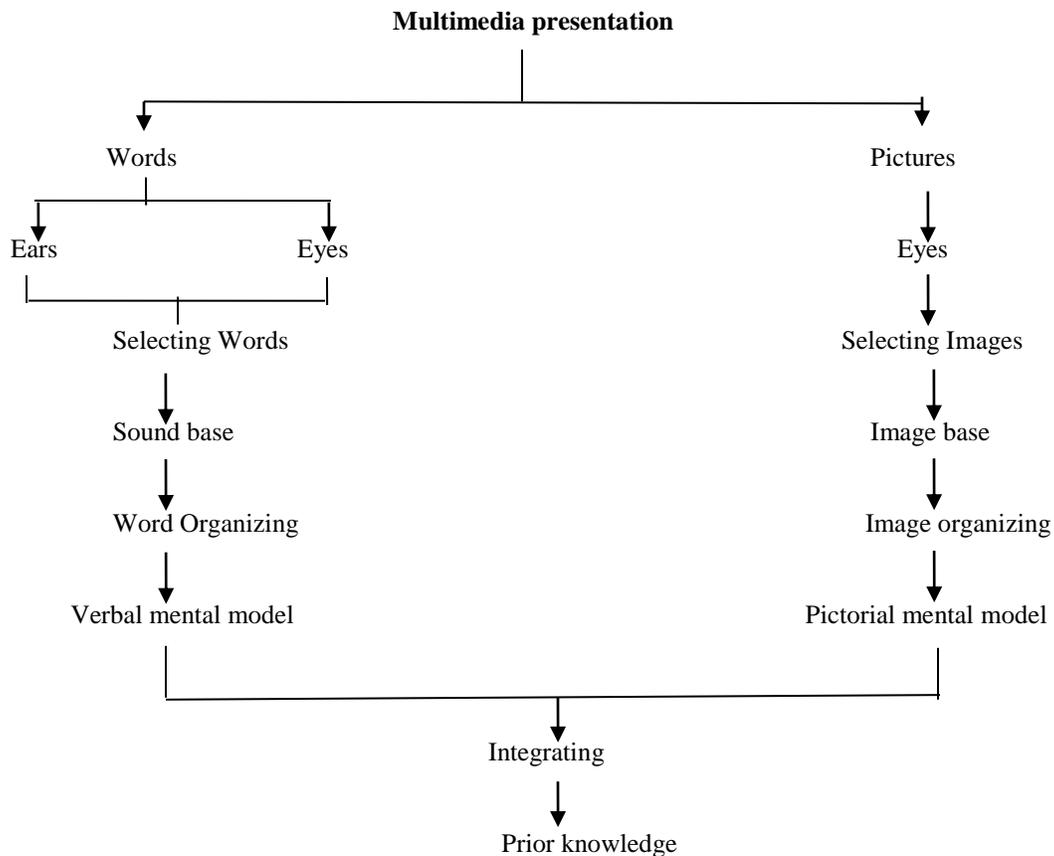
Motivation is a key concept to be success in teaching student who has high motivation would do the best in learning even though the materials were felt difficult. On the contrary, student who has low motivation would get

bored and be indifferent in learning even though the materials given were so easy. Motivation comes from inside an individual rather than from any external or outside rewards, such as money or grades.

Motivation is defined as the process that initiates, guides, and maintains goal oriented behaviors. Motivation is what causes us to act..... It involves the biological, emotional, social, and cognitive forces that activities behavior.

**KNOWLEDGE RETENTION**

Involves capturing knowledge is the organization so that it can be used later. Most often one hears of knowledge retention. Knowledge retention is considered when planning and delivering any training for students, knowledge retention refers to how well learners remember knowledge and in institutions how well the combined knowledge with an organization is preserved over time.



**Multimedia Connect The Human Interface To Electronic Information**

- To enhance traditional interface
- To gain and hold interest
- To improve knowledge retention among users

## **RATIONALE FOR USING MULTIMEDIA**

Several studies show that computer-based multimedia can improve learning and retention of material presented during a class session or individual study period, as compared to “traditional” lectures or study materials that do not use multimedia. comprehension of the material during the class session, and improved retention of the material at later testing times. There is general agreement that multimedia presentations are most effective when the different types of media support one another rather than when super flows sounds or images are presented for entertainment value which may induce disorientation and cognitive overload that could interfere with learning rather than enhance learning. Some studies have suggested that student satisfaction and motivation is higher in courses that use multimedia materials

The potential pedagogical value and rationale for using classroom media in these three points are as follows:

- To raise interest level -- students appreciate (and often expect) a variety of media
- To enhance understanding -- rich media materials boost student comprehension of complex topics, especially dynamic processes that unfold overtime
- To increase memorability -- rich media materials lead to better encoding and easier retrieval.

## **PRINCIPLES OF MULTIMEDIA**

- A. Words and Pictures Are Better Than Words Alone
- B. Multimedia Learning Is More Effective When Learner Attention Is Focused, Not Split
- C. The Presentation of Multimedia Content Should Exclude Extraneous and Redundant Information
- D. Multimedia Learning Is More Effective When It Is Interactive and Under the Control of the Learner.
- E. Multimedia Learning Is More Effective When Learner Knowledge Structures Are Activated Prior to Exposure to Multimedia Content
- F. Multimedia Instruction That Includes Animation can Improve Learning
- G. Multimedia Learning Is Most Effective When the Learner Is Engaged With the Presentation.
- H. Multimedia Learning Is Most Effective When the Learner Can Apply Their Newly Acquired Knowledge and Receive Feedback.

## **TEACHERS' AND THEIR ROLES IN MULTIMEDIA ENVIRONMENT**

There is an increasing awareness amongst educationalists, researchers and administrators that the introduction of the multimedia into educational institutions calls for a change in learning and teaching patterns. For example, 73% of the experts polled for culture of learning and teaching. They believe that teachers have some important roles in multimedia. They are as follows:

- A. Facilitator and Guide
- B. Integrator
- C. Researcher
- D. Designer
- E. Collaborator

**THE BENEFITS OF MULTIMEDIA LEARNING:****1. DEEPER UNDERSTANDING**

According to research, a benefit of multimedia learning is that it takes advantage of the brain's ability to make connections between verbal and visual representations of content, leading to a deeper understanding, which in turn supports the transfer of learning to other situations. All of this is important in today's 21st century classrooms, as we are preparing students for a future where higher-level thinking, problem solving and collaborative skills will be required.

**2. IMPROVED PROBLEM SOLVING**

A large percentage of the human brain dedicates itself to visual processing. Thus, using images, video and animations alongside a text stimulates the brain. Student attention and retention increase. Under these circumstances, in a multimedia learning environment, students can identify and solve problems more easily compared to the scenario where teaching is made possible only by textbooks.

**3. INCREASED POSITIVE EMOTIONS**

According to psychologist Barbara Fredrickson, experiencing positive emotions makes people see more possibilities in their lives. Using multimedia during instructions impacts student's mood during the learning process. With a positive attitude they learn better and tend to be more proactive.

**4. ACCESS TO A VAST VARIETY OF INFORMATION**

With computers, tablets, smart phones and the internet, students are today better equipped than ever to search and find the information they need. A study revealed that 95% of students who have access to internet, use it to search for online information. Sharing the information and participating in class discussions is done in a more confident way when access to information is as easy as today.

**5. WORLD EXPLORATION**

There is no surprise here. With the help of multimedia children can explore and learn about places they would never been to. In a geography class, students can explore different cities of the world, the tallest mountains and the most dangerous jungles. In a science class, space and planets exploration is now possible. In a biology class, the dissection of rare animals and different habitats exploration are like a walk in a park for students benefiting of a multimedia learning environment.

All together, multimedia learning environments have a direct effect on learning and even on growing as a person. An effect that differs and can't be achieved as easy while using traditional education materials. Therefore, it is no wonder the education technology is increasing and schools desire more and more to create multimedia learning environments for their students.

**RELATIONSHIP BETWEEN MULTIMEDIA AND LEARNING**

- A) Multimedia Provides Abundant Information
- B) Multimedia Contributes To Long Term Memory
- C) Need To Avoid Cognition Overload
- D) Specific Learning Experience
- E) Multimedia Can Arouse Learning Motivation
- F) Creative Active Learning Activities Is Contributive To The Communication Between Teachers And Students And Between Classmates.

**RELATIONSHIP BETWEEN MULTIMEDIA AND TEACHING**

- A) Promotes Interaction Between Teachers And Students
- B) Help Teachers To Teach Suitably
- C) Promote Students Study Capacity
- D) Blend The Multimedia Design With Diverse Teaching Material.

**Student learning and active engagement with subject matter.** In education student engagement refers to the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught, which extends to the level of motivation they have to learn and progress in their education. In this subject learning we are following the theoretical subjects mostly so the students should affects to learn so multimedia supports to engaging the students to learn interest and more learning. The most important benefits though have something to do with learner motivation. This then leads us to the next important question concerning active learning methods. Multimedia helps on Motivation and Retention for covering the expanse curriculum does not build strong connections in student's memory. Because of the pressures of standardized tests, teachers must find different ways to teach the required curriculum and help students retain the necessary information.

**Creating a literate environment to engage in high quality test.** The environment can create a positive while learners in the form of create a sense of order Meeting diverse needs and creating s supportive learning environment

**Educational multimedia applications are used to improve learning effectiveness.**

A multimedia learning environment involves numbers of elements in order to enable learning process taking places. Audio allows students to use their imagination without being biased, so it will greatly increase the learning outcome.

With learning aids such as visual simulations at certain point in learning forces the learners to mentally visualize the process by themselves and engage in deeper processing. It increases cognitive load but the increase is germane in that it is likely to assist schema construction and better information retention in the long run.

**MULTIMEDIA AND LEARNERS**

- It increased motivation for learners
- Supporting learning styles
- It creates practical learning
- It increases creativity
- It gives different environment

### **STUDIES OF ONLINE LEARNING ON STUDENT MOTIVATION**

The Student more easily understand the concepts or process occur in the concerning subjects. The teachers act as a facilitators and the student are motivated to learn more animation comparing the listening

So the students retaining the knowledge longer. Students can interact with the friends and they can build more professionals and also they can gain more with the interaction. Students motivation also increases with the use of self confidence will grow gradually when they are able to answer when the question posed

- To provide teaching material according to the need of each student
- To teach every student according to his/her own pace of learning.
- To provide teaching material for as much time as the student review.
- To access the leaning of all individuals and keeping records of them.

Furthermore, in the teaching-learning process, the pace of learning, achievement and retention of the student depends on factors like method of teaching, multimedia package, facilities available both at school and college level, characteristics of the learners etc. Looking to the importance of learner's characteristics in the teaching – learning process, in the present study, the relative effectiveness of interactive multimedia programme and conventional direct method is studied in relation to student's academic achievement and retention power. it is very essential for teachers to change their traditional view about Computers & adopt language lab method of classroom teaching. It carried out a research on the learning effects of multimedia assisted instruction using information technology model. And in the study researcher favored multimedia assisted instruction to improve the information literacy. Yet the findings of these researchers are not consistent and definite. Therefore, there was an emergent need to conduct more researches in this direction. In the present investigation the relative effectiveness of computer-based interactive multimedia method and conventional direct method of teaching is compared.

### **MEMORY AND INFORMATION PROCESSING**

Knowledge required to be retained and recall in the long term must be stored in memory. This memory process involves three successive stages: Sensory memory, working memory, and long term memory. The sensory memory receives input from the senses – presumably before it is recognized – and information is retained temporally in the sensory is registered. This memory enable one to look at something and remember what is look like with a just a second of observation.

The working provides a means of using knowledge could therefore be considered as the most active part of the memory system. This memory allows on to recall information for a period of several seconds to a minute without the rehearsal the capacity of the working memory is limited: It can hold no more than 5 to 9 elements of information and even fewer elements.

The long term memory is the repository for more permanent knowledge and skills Information that is not currently being used, but it necessary for understanding.

### **THE FIVE BEST PRACTICES FOR KNOWLEDGE RETENTION:**

#### **1. STAY RELEVANT:**

The best way to have your audience remember what you want teach them is to not mixed it up with other stuff – Like needless details literary flourishes, historical overviews of the subject, non permanent asides, and so on. Nothing kills knowledge retention faster than a meandering course material.

#### **2. KEEP IT SIMPLE**

Keep your training materials focused is a must, but keeping it simple is also important. Learners have a lot of things on their plates. Work related stuff, busy personal lifes, Looming deadline. Avoid complicated expression and academic languages.

#### **3. ENCOURAGE REPLETION:**

Necessity might be the mother of invention, but repetition is the mother of learning.

#### **4. GRAB A BITE**

Remember our advices about keeping its small and simple. Take it to next level and make it bite sized.

#### **5. MAKE IT PLAYFUL**

We learn best when we're more encouraged and we're more encaged when we're not bored when was are competing with others.

### **THE INFLUENCE OF MULTIMEDIA ON KNOWLEDGE RETENTION**

There are studies that explore the students knowledge retention when using to instructional frmats example lecture combined with discussion versus cooperative and active learning such as knowledge retention achievements gained by multimedia usage is much less investigated.

One of the studies explored long term retention of knowledge gained by interactive multimedia versus the conventional direct method of teaching all subjects.

### **IMPACT OF MULTIMEDIA:**

1. For students' better academic achievement and positive attitude development, Multimedia should be used in teaching of particularly at first level;
2. The study should be replicated in other disciplines as well at first level;
3. Multimedia should be provided to schools for teaching all subjects;

4. Multimedia moves us toward the constructivist approach of learning in which learner plays an active role in the teaching and learning process, so teachers should be motivate the students while using multimedia;
5. Multimedia gives a better attitude towards the students
6. Infrastructure should be provided to schools for the implementation of Multimedia.

## CONCLUSION

The Multimedia has the potential to be a powerful educational tool for those that have interest in it. Multimedia instruction creates the opportunity for learners to improve their learning effectively. Only under the background of effective education teachers can use the multimedia in advanced one and fulfill the targets by utilizing multimedia. It gives the educational success also. While using the multimedia learning will allow the student determine his or her own personal strengths and weakness and learn from them. They will still benefit educationally from multimedia programs. There needs to be interest and motivation and knowledge retention with using of multimedia in the first place for students to succeed. As with any instructional topic, multimedia gives a clear idea, interest on learning easily understanding and gives a new ways of idea. Teachers receive the retention of the students and they giving the practical knowledge. Multimedia has the ability to influence each one of these components, but care must be used to select the best toll for the jobs and taking learning goals basic pedagogy and cognitive overload in to account. Multimedia that is effective in learning and teaching doent simply consist of using multiple media together but combining media mindfully in ways that capitalized on the characteristics of each individual medium and extend the learning and teaching experiences. Teachers should first determine what outcomes they are trying to achieve. Student and teachers Involvement activities should be effectively planned and well implemented, and the results given a better environment. Multimedia package which eliminate the barriers in understanding and acquiring the motivation and retention of knowledge as well as self evaluation.

## REFERENCES

- [1] Garthwait, A. (2007). *Middle school hypermedia composition: A qualitative case study. Journal of Educational Multimedia and Hypermedia, 16(4), 357-375.*
- [2] Tettegah S., Taylor, K., Whang, E., Meistninkas, S., & Chamot, R. (2006). Can virtual reality simulations be used as a research tool to study empathy, problems solving and perspective taking of educators?: theory, method and application. International Conference on Computer Graphics and Interactive Techniques, ACM SIGGRAPH 2006. Retrieved from <http://dl.acm.org/citation.cfm?id=1179295.1179331>
- [3] Resnick, M., Martin, F., Berg, R., Borovoy, R., Colella, V., Kramer K., & Silverman B. (1998). *Digital manipulatives: new toys to think with. Proceedings of the SIGCHI conference on Human factors in computing systems (CHI '98), 281-287.* doi:10.1145/274644.274684
- [4] Seo, J., Kim, N., & Kim, G. J. (2006). *Designing interactions for augmented reality based educational contents. Technologies for E-Learning and Digital Entertainment, 1188-1197.* doi: 10.1007/11736639\_149.
- [5] Shamsuddin, N., Rajuddin, M. K. M., Mohd, F., Ahmad, F., Ahmad, W. F. W., & Baharudin, B. (2010). *An overview of augmented reality of underwater habitat. 2010 International Symposium on Information Technology, 1, 1-5.* doi:10.1109/ITSIM.2010.5561379
- [6] Shelton, B., & Hedley, N. (2002). *Using Augmented Reality for Teaching Earth-Sun Relationships to Undergraduate Geography Students. The First IEEE International Augmented Reality Toolkit Workshop.* doi: 10.1109/ART.2002.1106948
- [7] Atkinson, E.S. (2000). *An investigation into the relationship between teacher motivation and pupil motivation. Educational Psychology, 20(1), 45-57.*

- [8] Cramer, S. and Smith, A. (2002). *Technology's impact on student writing at the middle school level. Journal of Instructional Psychology*, 29(1), 3-14.
- [9] Garthwait, A. (2007). *Middle school hypermedia composition: A qualitative case study. Journal of Educational Multimedia and Hypermedia*, 16(4), 357-375.
- [10] Gils, F.V. (2005, June). *Potential applications of digital storytelling in education. Paper presented at 3rd Twente Student Conference on IT at the University of Twente. Retrieved September 23, 2009, from [http://wwwhome.cs.utwente.nl/~theune/VS/Frank\\_van\\_Gils.pdf](http://wwwhome.cs.utwente.nl/~theune/VS/Frank_van_Gils.pdf)*
- [11] Motivation. (2009). In *Wikipedia, The Free Encyclopedia*. Retrieved December 13, 2009, from <http://en.wikipedia.org/w/index.php?title=Motivation&oldid=331478062>
- [12] Nuthall, G. (2000). *The role of memory in the acquisition and retention of knowledge in science and social studies units. Cognition and Instruction*, 18 (1). Retrieved December 13, 2009, from *Technology and its Effect on Motivation and Retention22 ERIC database*.
- [13] Ohler, J. (2005). *The world of digital storytelling. Educational leadership*, 63(4), Retrieved December 13, 2009, from [http://imoberg.com/files/World\\_of\\_Digital\\_Storytelling\\_The\\_Ohler\\_J.\\_.pdf](http://imoberg.com/files/World_of_Digital_Storytelling_The_Ohler_J._.pdf)
- [14] Ohler, J. (2008). *Digital storytelling in the classroom: New media pathways to literacy, learning and creativity*. CA: Corwin Press, Inc. Retrieved November 19, 2009, from <http://books.google.com/book>
- [15] Prensky, M. (2001, October). *Digital natives, digital immigrants. On the Horizon*, 9(5), Retrieved November 19, 2009, from <http://www.hfmboces.org/HFMDistrictServices/TechYES/PrenskyDigitalNatives.pdf>
- [16] Robin, B. (2008). *Digital storytelling: A powerful technology tool for the 21st century classroom. Theory Into Practice*, 47(3), 220-228.
- [17] Sanacore, J. (2008, September 1). *Turning Reluctant Learners into Inspired Learners. Clearing House: A Journal of Educational Strategies, Issues and Ideas*, 82(1), 40-44.
- [18] Wolfe, P. (2001). *Brain matters: Translating research into classroom practice*. Alexandria, VA: Association for Supervision and Curriculum Development. Retrieved November 28, 2009, from [http://www.ascd.org/publications/books/101004/chapters/LongTerm\\_Memory@\\_The\\_Brain's\\_Storage\\_System.aspx](http://www.ascd.org/publications/books/101004/chapters/LongTerm_Memory@_The_Brain's_Storage_System.aspx)
- [19] Woolfolk-Hoy, A., & Hoy, W. K. (2009). *Instructional leadership: A research-based guide to learning in schools*. (3rd ed.) Boston: Pearson.