

COMPUTER-ASSISTED EDUCATION BENEFITS AND METHODOLOGIES

Sukriti Macker¹, Deepanshi Shukla², Indu Khatri³
Bhagwan Mahaveer College of Engineering and Management, Sonipat

Abstraction: *Computer-Assisted Education means the use of technology in the field of learning. This approach has the strength to transform our whole education system and take it to another level. We have studied various papers on a similar topic and with our own experience of the computer-assisted education, we have put together this research paper which compliments most of the aspects of computer-assisted education.*

KEYWORDS: *Computer-assisted education, traditional education, multimedia, cognitive skills*

I. INTRODUCTION

Computer-assisted education had entirely modernized the way students get educated. Computer-assisted education can make lessons much more interactive and engaging and can pique the interest of even the most reluctant of pupils. The trend began with many universities and education organizations deciding to plan a new approach concerning computer-based technologies. In consequence, computer-assisted education gained popularity. Using computers in an education environment enables the betterment of the level of information and retention in learning by intriguing various senses simultaneously.

Simply put, it is “the use of electronic devices/computers to provide educational instruction and to learn.” Computer-assisted education doesn’t just involve the use of computers. It also includes the use of other electronic devices such as CD, projectors, MP3 players, DVD players, online courses and additional courses used in universities and schools, smartphones, distance learning websites, applications like Byjus, etc. basically, any type of technology that can be used to absorb knowledge falls under the category of computer-assisted education.

The wonderful thing about this method of teaching and learning is that it can be implemented in almost all types of classrooms, from a play-school activity class to a medical school class, from a kindergarten art class to a martial arts academy class. This leads to a more personalized affair, as well as a more in-depth understanding of the knowledge being imparted.

1.1 Difference between traditional learning and computer-assisted education

1. Traditional education uses tools like blackboards, maps, etc. which appeal only to the visual senses and hence aren’t able to provide the students with enough motivation. On the other hand, computer-assisted education uses tools such as sound, moving images,

graphics, music, movies, etc. which appeal to more than one sense which makes learning fun. Hence knowledge becomes permanent.

2. Traditional education takes place in a group. Meaning, everyone has to advance at the same speed and at the same time. However, computer-assisted education enables the individual to absorb the material according to his pick-up speed.
3. A Study Plan in the traditional education system is prepared keeping in mind the average level of the student. Whereas in computer-assisted education, the schedules are constructed gradually from easy to difficult, simple to complicated, from concrete to abstract.
4. Traditional education doesn’t allow students to access information from different sources in the process of learning and teaching. In computer-assisted education, it is possible to reach various sources of information (via the internet).
5. Assessments in the traditional education system do not provide an immediate evaluation of the learning level of a student. He wouldn’t get the feedback that he deserves and thus, is deprived of the opportunity to upgrade specifically in the area he lacks. While, in computer-assisted education, the student is given an immediate report for his answers. Also, before moving onto the next question, he is received with positive reinforcement if the answer is right. Moreover, if the solution is wrong, he is given an opportunity to correct himself.

1.2 Benefits of computer-assisted education

1. Computer-assisted education lets pupils see easily the progress that they are making. This gives them a feeling of success and consequently motivates them to continue learning, absorb as much as they can, and get better.
2. Computer-assisted education includes puzzles, quizzes, flash-cards, and other kinds of active learning techniques. This keeps the students engaged and interested in the topic while they grasp the information being provided to them. Computer-assisted education influences the learner’s participation.
3. Teachers don’t always know the right way to teach a topic and to break down complex topics. Computer games can easily do this for the students and disintegrate the topic into sub-topics which can be learned simply and retained effortlessly.
4. Computer-assisted education allows each student to go at their tempo and make advancements in their own time. Hence, each pupil is able to have a more individualized and customized experience. This is quite

- useful in boosting the learning output of low-aptitude learners.
5. Computer-assisted education uses an expansive range of multimedia incorporating the audio and visual inputs allowing the students to comprehend the knowledge.
 6. The use of computer-assisted education can develop a student's self-confidence by providing well-organized and consistent progress reports.
 7. Computer-assisted education is an efficient way to deliver real-life examples related to the subject.

II. METHODS

Computer-assisted education has a variety of techniques that favor students. These techniques help students to grasp ideas and instructions in the most efficient way. It becomes beneficial for both students and professors to exchange concepts, and communicate their views, as the understanding power of students increase multi-folds, as well as the professors, find it easy to impart knowledge to the students. Computer-assisted education increases the retaining power of the students. This is the major factor in the rise of this education strategy. Under Computer-Assisted Education there lie various methodologies that can be taken up to effectively teach students.

2.1 Goals of computer-assisted education

The goal of computer-assisted education is to develop the learning potential, capacity, and ability of students. Computer-assisted education also increases teaching productivity, functionality, and effectiveness with the aid of advanced computer-based technologies.

Another goal of computer-assisted education is to impart a vast quota of information in a very short amount of time. It does so by reinforcing complex concepts and topics in a powerful way of puzzles, multimedia, music, etc.

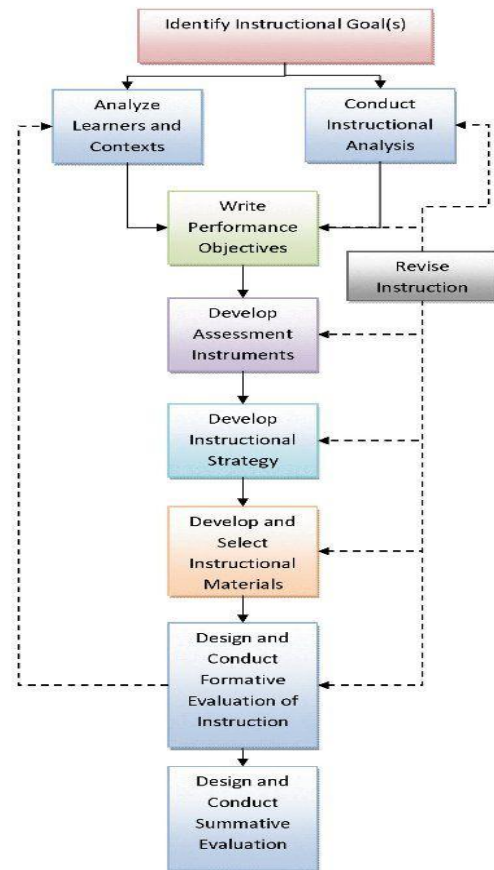
One more goal of computer-assisted education is to increase the focus and concentration of students at the task at hand. this gets them into the state flow or bubble easily. As a result, a habit to become less distracted is inculcates in the learners.

2.2 Strategies followed by teachers:

The teachers manage all the technology-based activities. The teacher becomes a helper or guide for such activities and makes sure the student has understood the instructions given to him properly. The teacher can switch over to the next activity in case she feels that an activity is too easy or too difficult for the students. The teacher also plays a significant role in motivating and maintaining the decorum of the class in case the computer-based education is taking place in a group.

Using the specific program software, the teachers give students personalized quizzes and tests for their assessments. The feedback that is provided to the students immediately after the computer base assessment, can be discussed with the teacher. This way the students get the personal attention of

the teacher and thus their retention of the subject increases along with their cognitive learning skills especially for the students who have a difficult time capturing and understanding the information. The teachers can schedule a separate class for students with slow learning speed. As a result, the students won't feel pressurized by other students and will easily be able to raise questions they feel uneasy to ask in a class full of many students. Consequently, this will remove the social-awkwardness the students have.



2.3 Strategies followed by students:

Since the students have the power to control their learning, they study at their learning rate and should not move forward until they have a thorough understanding of the previous topic.

Pupils can make the best out of all the activities included in a computer-assisted education program. Therefore, they must withdraw any kind of distractions that they may face. For example, games not related to their topics, television, social media, etc.

The students can consider taking notes along with the use of their other senses with audio-visuals. In return, this additional engagement would take their retention to an exceeding level.

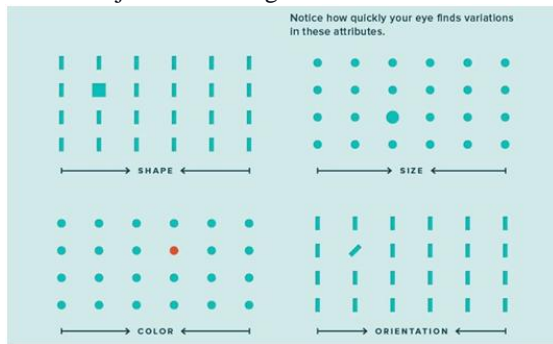
Consistency is the key. The learners irrespective of their age have to be regular in the learning and revision process.

Methodologies

2.4.1 Visual Learning

It is a saying that “Well-designed visuals do more than provide information; they bring order to the conversation.”. Pictures are the least complex and the best method to ensure that the information is given effectively and stored in the memory for a long period. A large number of students are capable of learning through visual aids. Computers with internet and video lectures are extraordinary assistance with this. It also supports improved comprehension. Visuals assist students to develop ideas effectively by invigorating creative minds and influencing their intellectual abilities. Plus, the visual language is likewise known to possibly extend 'human transmission capacity' – which includes retaining, comprehending, and examining new information.

For instance, consider the image below which helps to instantly comprehend and understand the difference between various objects according to their features:



2.4.2 Online Courses

Nowadays, as the technology is reaching new heights and new start-ups are popping up, the demand for new skills and innovative ideas are rising exponentially. To meet this new increase and ever-growing demand students are enrolling themselves in several online courses provided by various platforms. These courses can be paid or unpaid. These courses can be taken up according to the interest of the students. Through this medium, students get the benefit of studying or engaging themselves in what interests them at flexible times.

2.4.3 Discovery

Since the students have access to a lot of information via the use of a computer, he/she can engage themselves in reading articles, research papers, and explore the large database available to them. This would lead to great and innovative discoveries. This would also help the students to expand their horizons of knowledge. Students can explore new challenges, compare their learnings, and analyse their strategies to improve those learnings. This approach helps students to solve problems on their own, by researching and understanding every aspect of the topic.

2.4.4 Practice and Test

In this vast ocean of knowledge, by the use of Computer Assisted Education students can repeatedly work on developing their skills. There are a variety of sources available to the students to enhance their skills. They can

practice their hearts out. There are various mock tests that students can explore and gain enormous knowledge. And after performing tests, students can analyse their results and fix the mistakes they might be facing.

2.5 Boon to all section of society

Education is the right of all. The student is not defined by age, caste, gender, creed, and the section of the society from where the person is coming from. The use of Computer Assisted Education is a boon to every student who ever wanted to engage themselves in fruitful opportunities and wanted to accomplish their dreams by educating themselves. Through Computer-Assisted Education the education opportunities are spread to wide sections of society. Nowadays, through Augmented Reality, Machine Learning, and Motion Based Learning is providing students to increase their spectrum of knowledge. These ground-breaking technologies are changing how we view education. They are challenging the roles of educators, the approach of teaching. Using Computer-Assisted Education we break down large topics into small topics so that the students find it easy to understand and comprehend. Using this approach of studying, students can see and make progress in their own time. Computer-Assisted Education can turn a bored student into an engaged student. The use of engaging pictures, tutorials, and video lectures while teaching a student creates more simulations in the minds of students so that they stay involved and participate in active learning.

Computer-Assisted Education pleases all sections of society. A working professional can also benefit from this technique. While the person is still pursuing a full-time job where he/she cannot devote their time to boost and improve their skills, they can use the technique of Computer Assisted Education. This way he/she can learn at the time suitable to them. Innovation can be viewed as a gift to all the students. A few students may not have funds to afford school or college to finish their education. Additionally, some may not have the necessary cash to try and travel to different countries or towns to seek their training. With this respect, computer-assisted education provides the required education opportunities in such conditions. Students can keep on learning in their premises just with the assistance of innovation given to them, at any rate. Along these lines, while an individual is busy working or can't go to an educational institute due to family issues can keep on pursuing their higher studies. Therefore, Computer Assisted Education has expanded the intensity of education. It has expanded the education proportion around the world. In this day and age, each individual approaches quality training and education. It has given the framework to establish education in a genuine sense. From this time forward, incorporation of Computer Assisted Education in the education field has changed how we learn in the most advantageous manners.

III. CONCLUSION

The power of Computer Assisted Education is yet to be fully discovered. Also, various educational resources are spreading their roots and bringing great changes in the lives

of every student around the world. The present study techniques of Computer Assisted education is a great supplement tactic in teaching which is very effective and substantial as it increases the interest and enhances the quality of learning in students. This methodology is effective while teaching all categories of students from low achievers to high achievers. Computer-Assisted Education techniques provide educational materials that can serve as either substitute or additional material to direct teaching. Therefore, the efficient use of this technique, method, and materials should be ensured at all levels of education. The instructional strategy and materials can enormously affect the academic performance of students if the amount and nature of learning material are appropriately designated, leveled per student, and productively utilized.

The teacher-student relationship can either be established greatly or it can be eroded by this technique. Because the students are turning to alternate study techniques that will empower them to learn and advance on their own this might affect the relationship badly. But also, it solely depends upon the attitude of the students as well as teachers. If teachers understand that the traditional and conventional ways of teaching need evolution, and also if they encourage the method of Computer Assisted Education the relationship is bound to grow. Adapting the technology at the preschool level will bring out a drastic change in the education pattern. We will bring out more students with better analytical and expressive skills.

Computer-Assisted Education removes most of the barriers faced by most of the education systems around the world. By this means all learners come together in harmony.

REFERENCES

- [1] https://academicjournals.org/article/article13796895_97_Akengin.pdf
- [2] <https://brainly.in/question/1743063>
- [3] <http://briefaboutcomputereducation.blogspot.com/2014/02/computer-aided-education.html>
- [4] <http://www.tojet.net/articles/v5i3/538.pdf>
- [5] <https://www.fluentu.com/blog/educator/what-is-computer-assisted-learning-2/>
- [6] <https://www.slideshare.net/iscollins/computer-assisted-instruction-strategy>
- [7] <https://files.eric.ed.gov/fulltext/ED501444.pdf>
- [8] <https://elearningindustry.com/visual-learning-6-reasons-visuals-powerful-aspect-elearning>
- [9] <https://nation.com.pk/14-Feb-2015/educational-technology-a-boon-or-bane>
- [10] http://www3.inpe.br/unidades/cep/atividadescep/isprs/cd-rom/Papers_Titulos/016.pdf
- [11] <http://www.businessworld.in/article/Technology-A-boon-Or-Bane-In-Education/21-07-2018-155280/>
- [12] <https://www.tutorsumbrella.com/blog-technology-in-education-A-boon-or-bane.php>
- [13] https://shodhganga.inflibnet.ac.in/bitstream/10603/13299/9/09_chapter%205.pdf