

STUDY OF ROLE OF TECHNOLOGY IN PHYSICAL EDUCATION AND SPORTS

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ABSTRACT :- In the ever changing world technology has got its own influences a result life of the people has become fast and complex in each and every aspect. Now-a-days, in physical education also technology has its own vital role to play. It has raised the standard of physical education and sports to a level, far, far away from the level it was before. The technological advancement in physical education and sports helped the profession attain the goals in an easier and simpler way. Technology has stretched out its areas such as teaching, coaching, performance, and analysis, manufacture of sports material, sports medicine, sport science, sport teaching, etc., through which the profession has grown to a great height. Many researchers have proved that teaching and learning process is positively affected by technology. In physical education and sports we notice advancement in each and every aspect. So far as sport technology is concerned, except to some extent it can't serve its best without technology in physical education and sports but it is playing vital role for coaches, trainers, officials, physical education Director, Physical Education Teachers, students and athletes.

KEYWORDS:- Technology, Physical education and Sports.

INTRODUCTION:-

The world of sport is continually changing over the years, and the use of technology is just one of those areas that have made an impact on many sports in the modern day. One criticism of the use of technology is that it can slow down the speed of the game practically everybody has played sports video games on a computer. It's fun to pick a team and see how well you can play against a "virtual" rival. However, the uses for computers in sports go far beyond video games.

Analyzing Movement-

If you ask a softball pitcher how he/she throws a fastball, he/she may not be able to tell you. She may say it's just "instinct." It's something that comes naturally. The fact is that there are ways to help pitchers become better pitchers and batters become better hitters. And computers are important in making this happen. Baseball players from the major leagues down to city and school teams can now have their batting and pitching analyzed.

First, the player's movements are videotaped. Then, these videotaped images are transferred into a computer. Special application software analyzes the images. It measures the exact angle at which the player is holding his or her arms and legs. The speed and efficiency of each body movement is measured. This process is called motion analysis. These computer applications also can be used to compare the movements of two different layers. These comparisons, for example, can help explain why different players tend to hit the ball in different directions.

Keeping Stats-

Everybody knows how important statistics (or stats) are in sports. Without computers, it would be very difficult to keep these statistics up-to-date. Not only are there team statistics, but there are also statistics on each individual player. Spreadsheet applications are often used to keep track of statistics. Spreadsheet applications are computer programs that can store and manipulate numbers.

Jumbo Sized-

Going to a baseball park is almost like going to the circus. There are hotdogs, popcorn, and a scoreboard complete with a gigantic TV-like screen. New ballparks,

such as the Seattle Mariners' Safeco Field, have very complex scoreboards. The Mariners' board is 56 feet tall and 190 feet wide. It includes a giant screen to add to the excitement. The best-known type of giant screen is the Sony Jumbotron. The pictures on these screens move from the players to the crowd. In 2000, the University of Tennessee's athletics and physics departments joined together to create a group of 60-second videos. These videos were shown on the school's Jumbotron during home games. The purpose of the videos was to teach fans about the science of football. This was a fun way to join together sports and education.

On the Web-

The Professional college and even some high school sports teams have their own Web sites. Just go to their Web site it provides opportunity for the viewers to know the following The information available on sports teams' Web sites is amazing. Some of it includes:

- **Schedules.** Game dates and locations are available.
- **Statistics.** Up-to-the-minute information on teams and individual players is ready whenever you want it.
- **Team News.** Web sites contain coach and player interviews, information on injuries, and so forth.
- **Ticket Purchasing.** Rather than stand in line, you can purchase your tickets at home. You can even look at a diagram of the stadium to see exactly where you will be seated.
- **Online Shopping.** You can buy baseball cards, caps, jerseys, and many other items.

Computers and the Olympics-

Athletes who depend on speed to win will stop at nothing to reduce their times. Some Olympic swimmers wear full-body "skin suits" so they can glide through the water more easily. This **simulation software** attempts to copy the way water flows around parts of the swimmer's body, such as the arms and hands. The swimmer's goal is to move through the water as smoothly as possible. Water **turbulence** can slow a swimmer down. At the 2002 Winter Games in Salt Lake City, Utah, tiny computer chips were used to track skiers. A chip was strapped to each skier's ankle. Electronic devices were buried in the snow along the track. When a skier passed over one of the devices, his or his chip sent information to the device. This information included the skier's

location, speed, and number. This information was sent to a central computer. Judges and other Olympic officials could then look at it.

For Research-

The research scholar, physical education experts use the technology for their research work, there are number of software are available to analysis the Data's (SPSS, EXCEL, ONLINE DATA ANALYSIERS) etc. it is very difficult for research scholar to a complete his work without the technology that is computer, internet, printer etc., The research scholar surf the internet to get full knowledge about his area of research and also helps in analysis of body posture, BMI, Body composition & body fat. Use to gain knowledge of all the games and sports in world.

The computer and internet is part of games and sports because the internet gives u full information about rules of the game, players profile, origin and history of sports, to know new rules and laws of the games, to make result neatly, record the score and data's of games, to learns skill, to teach skill, to correct the skill, to know athlete ability, for talent identification of athletes thus the technology is far much useful the all the individual to those who use it properly. The Technology which has been used to coaching training and correction of skills.

Technology in Football-

Why Soccer Goal Line Technology?

There is a need for goal line technology in soccer, particularly as there are numerous examples where the TV reply has been able to show wrong decisions by the referee, where a ball has or has not passed over the goal line, and the goal was given or not given. Technology in cricket, tennis and American Football has been successfully implemented, and in general the fans have welcomed it.

Requirements-

There are several options available for goal line technology. The International Football Association Board (IFAB) want to get it right before they implement a system. They have laid down the following four criteria that they want to see in a goal-line system:

The technology should only apply to goal-line decisions.
The system must be 100 per cent accurate.
The signal sent to the referee must be instantaneous.
The signal is only communicated to the match officials.

Possible Options-

Smart Ball

A promising prospect has been a "smart ball" loaded with an computer chip, jointly developed by German companies Cairos Technologies and the Fraunhofer Institute for Integrated Circuits, an engineering research and software development company, along with the Adidas athletic clothing and shoe company. The companies' technology uses a network of receivers around the field designed to track the ball's precise position in real time - including exactly when it has fully passed the goal line. That information would be relayed in less than a second to a watch-like device worn by the referee.

Hawkeye-

The system by the UK Company Hawk-Eye has had very successful trials and is the front runner out of the systems in development. Hawke-Eye has already been used to make calls in tennis, and used as a TV tool in cricket. The Football version has been extensively trailed at Reading and has performed very well in the test environment. The Hawke Eye system uses three cameras focused on each goal-line, and each taking footage at 600 frames a second.

Hawk-Eye is able to give a definitive decision on whether the ball has fully crossed the line, and relay this information in the form of an audible beep to the central referee within half a second. As the Premier League referees use headsets, the signal is easily sent to them. In other leagues, other methods such as through a watch can be used. The system is on target to be in place by the end of 2007. For anyone who has seen their team robbed of a win because no such system is in place, it will not be soon enough.

Technology in Tennis-

Hawk-Eye line-calling system

Hawk-eye is the name of a line-calling system which traces a ball's trajectory and sends it to a virtual-reality machine.

Method:-

Hawk-Eye uses six or more computer-linked television cameras situated around the court. The computer reads in the video in real time, and tracks the path of the tennis ball on each camera. These six separate views are then combined together to produce an accurate 3D representation of the path of the ball.

Technology in Cricket-

Over the years cricket has incorporated into the game a few of the technological advances available. There have been some rejections of technology, such as the use of aluminum cricket bats, but generally the ICC has been rightly cautious about making changes to the game that will impact the players and spectators. Here are discussions about a few of the technological innovations that are in cricket or are being discussed about being included.

Third Umpire-

In international cricket, the third umpire has been used to supplement the role of the two umpires on the ground. The third umpire is equally qualified, and sits off the ground with access to TV replays of certain situations (such as disputed catches and boundaries) to advise the central umpires. The umpires out on the field are in communication via wireless technology with the other umpire. The third umpire is also asked to adjudicate on run out decisions, which he makes without consultation with the two central umpires.

Hot Spot-

Hot Spot is an imaging system used in to determine whether the ball has struck the batsman, bat or pad. Hot Spot requires two infrared cameras on opposite sides of the ground above the field of play that are continuously recording an image. Any suspected snick or bat/pad event can be verified by examining the infrared image, which usually shows a bright spot where contact friction from the ball has elevated the local temperature. Where referrals to an off field third umpire are permitted, the technology is used to enhance the on-field umpire's decision making accuracy. Where referrals are not permitted, the technology is used primarily as an analysis aid for televised coverage.

Use-

Its principal application in crickets is in deciding whether the ball has struck the batsman's bat or pad — this determination being critical in determining if a batsman is dismissed or not on appeal for LBW or caught. Hot-spot imagery is also used to show which part of the cricket bat hit the ball, as ideally the batsmen try to "middle" the ball i.e. hit it where the sweet spot lies. Hot spot camera provides some valuable information while analyzing the strokes played by a batsman.

Cricket Referrals-

Cricket has joined some other sports and has played around with an umpire referral system. It was first trialed in 2008 (in a Test series between Sri Lanka and India). Unlike in tennis where the challenge and referral decision is clear cut using hawk-eye technology, the cricket referral is adjudicated by the third umpire, and is open to further errors. The actual way it works may change and develop, but when it was first brought in this is how it worked.

TV Technology-

Hawkeye - A computer system first used in 2001 for showing the path of a cricket ball. It is a commonly used and indispensable tool for cricket commentators around the world to confirm the umpires decisions. Snick-o-Meter - a very sensitive microphone located in one of the stumps, which can pick up the sound when the ball nicks the bat. This technology is only used to give television audiences more information and to show if the ball did or did not actually hit the bat. Unfortunately the umpires does not get the benefit of seeing 'snicko'.

New Technology-

Cricket is a sport steeped in tradition. Making changes to the rules that have been in place for a long time is not taken lightly. In addition to uses of technology that are discussed above, here are a couple more ideas Give the umpires some feedback about whether a front foot no ball has been made. They could have some technology which gives the umpire a beeping sound if the bowler crosses the popping crease, like in tennis for let or fault calls. This will mean that the umpire does not need to be distracted and looking down as the bowler delivers the ball, and can focus on what the batsman do.

This has been trailed to some degree, but every batsman should be allowed to challenge a decision if he feels that he's got a wrong one, which can then be referred to the third umpire. Viewers at home get much more information than the umpire, which only makes the umpire look incompetent. Why not change the way things are done so that the right decision is made all the time.

Hawk-Eye System in Cricket-

Hawk-eye is the name of a computer system which traces a ball's trajectory, with a claimed accuracy of 5 mm, and sends it to a virtual-reality machine.

Method-

Hawk-Eye uses six or more computer-linked television cameras situated around the cricket field of play. The computer reads in the video in real time, and tracks the path of the cricket ball on each camera. These six separate views are then combined together to produce an accurate 3D representation of the path of the ball.

CONCLUSION:-

An attempt was made in this paper to present a how the technology is helping to physical education and sports. The technological advancement in physical education and sports helped the profession attain the goals in an easier and simpler way. Technology has stretched out its areas such as teaching, coaching, performance, and analysis, manufacture of sports material, sports medicine, sport science, sort teaching, etc, through which the profession has grown to a great height. Whenever a profession needs to carry out certain function-to review the quality of motion, for performance analysis, for assessment etc. technology has helped overcome those difficulties.

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