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## Potential of ICT in improving performance in sports

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### Abstract

To enhance the learning and performance, the use of technology is widely used in modern world. The field of sports is not left behind while making the use of various latest technological tools. The role of information, communication and technology (ICT) has been widely used by researchers in the recent past throughout the world. Therefore, the use of ICT, along with other changes, seems to be immense in modern era. However, in India despite the huge potential offered by ICT, their actual use seems to be confined to only elite institutions and sports persons. Here in this article we try to bring out a clarity about various ICT tools and the potential they offer in terms of improving efficiency and performance of Indian sports at international level.

**Key words:** Information, Technology, Communication, Tools

### 1. Introduction

Today, while ranking the competitiveness and wellbeing of any nation at international level in various economic, social, educational and other parameters, sports performance of that country also makes a huge contribution in its overall performance. Therefore, being a sports super power in global order is what we Indians aspire for.

In order to compete with advance sports countries, we try to do all possible things to improve the performance of our Indian sports persons. We bring changes in our training methods, schedules and take help of various training and teaching aids to improve the sports performance.

Information and Communication technology (ICT) is often used as an extended synonym for information technology (IT). But ICT is a more specific term that stresses the role of unified communication and the integration of telecommunications, computers as well as necessary enterprise software, middleware, storage and audio-visual systems, which enable users to access, store, transmit and manipulate information.

The term ICT is now also used to refer to the convergence of audio-visual and telephone networks with computer networks through a single cabling or link system. In fact, ICT covers any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form.

ICT is the digital processing and utilization of information by the use of electronic computers. It comprises the storage, retrieval, conversion and transmission of information (Okauru, 2011) [9].

Infect, ICT is an umbrella term that includes any communication device or application, encompassing; radio, television, cellular phones, computer and network hardware and software, satellite system and so on, as well as the various services and applications associated with them, such as video conferencing and distance learning. ICTs are often spoken of in a particular context, such as ICTs in education, healthcare, libraries. (Rouses, 2005) [11].

The term, information and communication technologies (ICT) refers to forms of technologies that are used to create, store, share or transmit, exchange information. This broad definition of ICT includes such technologies as: radio, television, video, DVD, telephone (both fixed line and mobile phones), satellite systems, computer and network hardware and software; as well as the equipment and services associated with these technologies, such as videoconferencing and electronic mail. (UNESCO 2002)

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### **Sporting technologies**

Sporting technologies are man-made means developed to reach human interests or goals in or relating to a particular sport. Technology in sports is a technical means by which athletes attempt to improve their training and competitive surroundings in order to enhance their overall athletic performance. It is the knowledge and application of using specialised equipment and the latest modern technologies to perform tasks more efficiently.

#### **Areas of Application of Ict in Sports**

Administration: to produce documents/ lesson plans, to convert scores (Excel, Word, etc...).

Management: this involves everything from discipline to class organization and time management

Feedback: video, P.C., heart rate monitor.

Remedy: heart rate monitor, educational software.

Evaluation: video, use the digital camcorder to analyze students in action.

Professional development: lifelong learning/ continuing education, sharing experiences.

Public relations: communication via internet with the outside world.

#### **Benefits of Using Ict in Sports**

Recent developments in sporting technologies have created a variety of products aimed at improving and increasing athletic performance. Athletic health can be maintained and observed, and injuries treated, through the production of modern sporting technologies such as heart rate monitors, pedometers and body-fat monitors. Through this, a greater deepened knowledge of the human body and its potential has been recognised, allowing athletes to train and compete in sports to a much older age. Participant safety at all times has also been made possible through the development of certain sporting equipment, such as helmets and body protection which are used in boxing and ice hockey to help prevent injuries. Modern sporting technologies have also made competition judging easier and more accurate, and spectator interest and excitement is enhanced by broadcasting and in-stadium displays (scoreboards).

The use of ICT in PE makes the science of sport come to life by linking both physical and mental activity. It also helps to create full-fledged students who are able to concentrate better on both practical and theoretical work. Besides, it helps students to develop a better understanding of their own body parts and that of the human body in general. It also raises the profile of P.E within the establishment by making the subject not only interesting, but also attractive and effective. Furthermore, it brings enthusiasm and motivation for both PE teachers and students.

ICT is also very important with regards to school administrative work. In fact, data can easily be collected and shared for analytical purposes, e.g. electronic records of performance of athletes. ICT also promotes teaching and learning within the school organization by changing the nature of learning itself. Students are motivated and are able to grasp essential concepts that previously eluded them. By developing their abilities to think in different ways students can select and apply skills, tactics and ideas, to evaluate and increase performance.

In addition, with ICT, pupils are able to get access, select and interpret a wide range of information more easily. They are also able to recognise patterns, relationships and behaviours

using appropriate technological software. Furthermore, models, predictions and even hypothesis can be made by students with the advent of ICT. Access to images of quality performances can be obtained through video filming. Hence, students are able to review their work and modify it to improve the quality. Through ICT tools reliability, evaluation and accuracy of actions can also be done. ICT further provides a very reliable source of communication among people within the organisation. The use of email, fax, Facebook or even Skype will enable quick and direct communication among P.E staffs and even students in other schools on fixtures, meetings and many other relevant matters. Therefore, accuracy of information does not depend only on the busy school secretary.

#### **Ict Tools That Can Be Used In Physical Education**

There are many good options available to physical educators in regards to technology. Many of these technologies are easily accessible and are easily incorporated into the curriculum. ICT incorporates a vast array of hardware and software. The following technologies should be considered for use within PE for planning, administrative and teaching purposes:

##### **Pedometers**

These apparatus also called step counters are mechanical sensors used to count steps and can easily be incorporated in PE classes. They address motivation, assessment, and advocacy. Furthermore, they are portable and can be worn under the belt and be kept the whole day. Today, it can be said that the pedometer has become a recognized acceptable tool for measuring physical activity. Students can wear a pedometer and receive immediate and continuous feedback regarding their activity level (Beighle, Pangrazi, Vincent, 2001). Using pedometers at school can also demonstrate to parents that students are achieving a certain level of physical activity. By using the pedometers students will be able to see progress towards set goal and consequently will be more motivated in the classes.

##### **Heart Rate Monitors**

Based completely on the student ability level and current level of fitness, the heart rate monitor makes learning more student centered. It also provides immediate feedback that can make students work harder (Bian, Partridge, King, Andon, Boyer, 2007). As fitness level increases, student feel that their cardiovascular system is working and can set individualized goal to work more effectively.

##### **Digital Video camera and visual analysis software**

The use of the motion analysis system will surely enhance many areas of the physical education curriculum both in research and teaching. Using digital video camera has indeed simplified the collection of data. These results can then be imported to carry out interactive multimedia presentation to provide students with a better understanding of the importance of breaking skills into components and the consequences of subtle variation in techniques (Ladda, Keating, Adam, Toscana, 2004). The visual analysis software allows students to view captured movement and to analyse them. This particular technology can help teachers to control student's progress towards motor skills goals; provide feedback opportunities and assessing student learning (Fiorentino and Castelli, 2005). Using digital video camera to

record pupils' performance in table tennis for example, can be a useful tool to help students improve their techniques. With the addition of motion analysis software, pupils have a professional supportive tool.

### **Simulation and Games**

Games such as Dance, Dance revolution, Fx cycles and Nintendo Wii Fit provide opportunities for students to be physically active and simultaneously enjoying themselves. These games can also be combined to other technologies to enhance the experience (Di Giorgio, 2004). Concerning the Nintendo Wii Fit, work outs are done on a small balanced board that gamers stand on. The players receive instructions from screen and mimic the stretching and muscle building exercises. The Wii Fit tracking feature shows progress using the system. Therefore, it can be a valuable PE tool. However, teachers should not consider gaming system equivalent to traditional exercises. It should be considered as a supplement and not a replacement of traditional exercises.

### **Internet**

A global network providing the capability to communicate, share ideas and access information and resources from around the globe.

### **Intranet**

Similar to the Internet, but information from within a school or organisation.

### **CD-ROM**

Information is presented in the form of graphics and text with sound and moving video

### **Data handling**

Information can be stored in a database. •

### **Desktop publishing**

A combination of text, graphics and layout to produce a document. • Presentation software – For example, Microsoft® PowerPoint – software displaying information in slide form

### **What Can Be Done**

In the future, P.E will need to undergo radical changes. If technology had an impact in learning in general education, could it also enhance teaching and learning in P.E? New developments in the field of technology will positively affect the P.E curriculum. For example, the use of technological advances will prepare physical educators for the future demands and expectations of the society. Furthermore, the Ministry of Education is laying much emphasis on integrating ICT in the teaching and learning process in secondary schools. As students perform exercises and skills in their PE classes, PE teachers can use technological tools and systems to quantify processes and results to help them learn more about themselves (Kirkwood, Manon, 2002). Its high time for us to:-

1. Centralise ICT within PE to increase learning for all.
2. The aim is to spark enthusiasm, change practise, raise standards and improve learning.
3. Founded upon the notion that Physical Education is a visual and practical subject
4. Not just for the minority of children, aiming to impact at all levels of Physical education, including those with

low motivation and low levels of achievement

5. Looking to engage children through actual subject content changes
6. New vision, Change the vision of what is possible
7. Very much focused on relating to learning objectives and child centered learning.
8. Let them to the analysis of their own performance

### **Challenges Ahead**

However, before using ICT in our schools as a teaching tool, these important questions must be addressed. What technological options are available for our PE educators? Do using technological tools in the PE classes motivate the students? What is the role of technology as an assessment tool and how it is linked to performance and to answer these questions we need to:-

1. Maximise the use of ICT in PE based work
2. Develop the skills needed by PE teachers to use Digital Image feedback effectively.
3. Be clear about the impact of digital Image feedback on learners in PE.
4. Be clear about the benefits of the use of Reference Images to support learning in physical education.
5. Teaching strategies can be varied when integrating ICT and consideration should be given to.

### **Conclusion**

This decade is characterised by rapid technological advances. Being in the digital era, technology has accounted for many changes in the educational sector. These changes range from the method instruction is delivered, to the attitudes on how learning occurs to the amount of collaboration and knowledge sharing between not only students, but also between teachers, managers and administrators. ICT represents one of the most useful tools to enhance curriculum if used correctly.

Throughout ICT tools, pupils can benefit from immediate feedback to improve their observational and analysis skills. As they familiarise with the software, they are able also to point out the relevant points for positive technique. The main advantage, however, remain the general improvement in the performance level of the majority of the pupils' work, as they struggle their way to look impressive especially if their performance will be analysed on digital video system

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