
Enhancing The Teaching And Learning Of Physical Education And Sports Through Information Technology In Tertiary Institutions In Nigeria

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Abstract

The introduction of Information Technology has made the teaching and learning process more effective. This has brought about significant positive effect on students outcomes in various disciplines in tertiary institutions in Nigeria. Physical Education and Sports is one of the disciplines that has witness a remarkable development with the use of information technology most especially in developed countries. This paper therefore, focused on what information technology is, the role of information technology such as pedometers, heart rate monitors, video- tapes and fitness soft- wares among others, in enhancing the teaching and learning of physical education and sports. Also discussed are factors militating against effective application of information technology in the teaching and learning of physical education and sport in tertiary institutions in Nigeria. It is recommended that there is need for man power development by way of encouraging physical education and sport instructors to embark on in-service training so as to acquire the knowledge of information technology among others.

Key Words: Information Technology, Physical Education and Sports, Tertiary Institutions.

Educational system the world over, has witnessed the introduction of Information Technology most especially in the 21st century. The resultant effect of this development has helped to revolutionalised the political, socio-economic and educational sectors in developed countries. Many changes in the educational sector

have emerged with the introduction of Information Technology. These changes range from the methods of instruction, deliver, to the attitude on how learning occurs, the amount of collaboration and knowledge sharing between teachers which has brought significant positive effect on students' outcomes when compared with traditional instruction modes/methods (Waxman, Lin & Mitichko, 2003).

It has been observed that information technology do not only have significant effect on learning in a regular classroom, but also could enhance teaching and learning in physical education and sports. Through information technology, students can have opportunities to explore how science and technology can be used to promote and maintain good health. Students can also be acquainted with products and services that can be used to collect information about health and performance and continue to make connections on how science and technology work together to promote and improve health.

Similarly, as students perform exercises and skills, teachers can use tools and systems to qualify processes and result to help them learn more about themselves (Kirkwood & Mahon, 2002). Education is a prerequisite for development of human capacity and consequently the development of any nation. Therefore, the utilization of information technology to enhance the teaching and learning of Physical Education and Sports cannot be overemphasized. As teachers of Physical Education and Sports, we should not only equip students with this accelerated technology, but also to harness its power in order to improve the standard and quality of Physical Education and Sports graduates from our tertiary institutions.

What is Information Technology?

Information refers to facts and options received or provided daily in the course of interaction with fellow beings in our environment. Information technology is basically the use of computers and other telecommunication technology in the processing, storage, transmission and dissemination of information (Yakubu, 2004). New information technology has made it possible to store, manipulate and retrieve information in different formats irrespective of location by means of telephone connectivity. Wikipedia (2009), asserted that Information Technology (IT) is the application of computers and telecommunications equipment to store, retrieve, transmit and manipulate data, often in the context of a business or other enterprise. The term is commonly used as a synonym for computers and computer networks, but it also encompasses other information distribution technologies such as television and telephones.

The Role of Information Technology in the Enhancement of Teaching and Learning of Physical Education and Sports in Tertiary Institutions in Nigeria

In the quest to enhance the teaching and learning process of educational programmes, one innovation that has emerged is the introduction of information technology. There are many good options available to Physical Education and Sports instructors in regards to information technology. Some are easily assessable and easily incorporated into the curriculum without major changes which can be used to promote physical activity and change exercise behaviour. Some of these information technologies include; pedometer, heart rate monitors, video tapes, fitness soft- wares and web- quests among others.

Pedometers

Current evidence supports the use of pedometers as effective motivational tools to promote physical activity and improve Health – related quality of life among people. Pedometers count and monitor the number of steps taken throughout the day. Most pedometers provide a fairly accurate count of steps taken during ambulatory activities such as walking, jogging and running. Newer devices of pedometers provide an estimate of the total time spend during continuous walking at a moderate intensity for durations of 10 minutes or more. To provide accurate step counts, most pedometers need to be attached to a firm waistband; however some can be carried in shirt pocket, a paint pocket or a bag held close to the body. Beighle, Pargrazi & Vincent (2001) asserted that students can wear a pedometer and receive immediate continuous feedback regarding their activity level. Pedometers offer one more means of demonstrating to the public that students are achieving levels of physical activity. Additionally, they give parents and students a way of discussing how active they should be including setting goals for activity. A key predictor of increased physical activity is setting a step goal (e.g. 10,000 steps per day) for participants. Pedometer based walking programmes are associated with significant decrease in body mass index, body weight and systolic blood pressure.

Heart Rate Monitors

Heart rate monitors are used primarily to asses and monitor exercise intensity. These devices are especially useful for monitoring exercise intensity of individuals in cardiac rehabilitation programmes and high-trained competitive athletes. As a result of the fact that heart rate is linearly related to oxygen uptake, it can be used to estimate the individual's exercise energy expenditure. However, estimates of energy expenditure from heart rate many be affected by factors such as temperature, humidity, hydration and emotional stress.

Heart rate monitors can provide immediate feedback that can make students work harder (Blan, Partridge, King, Anton & Bayer, 2007). The use of heart rate monitors helps to make the learning more students - centered, as it is based completely on the students' ability level and current level of fitness. As fitness levels increase,

students can see that cardiovascular benefits are being achieved. Individuals with greater cardiovascular endurance must work harder to achieve desired heart rates, giving students an individualized goal to work towards to. Heart rate monitors provide students real time data that allow them to see how different exercises and activities affect heart rates. Although a heart rate can be determined by counting pulse rates in the neck or wrist for a set period of time, a heart rate monitor is more convenient, and it allows students to use up-to-date technology (Kirkwood & Mahon, 2002).

Video Tapes

Using video provides many opportunities for enhancing learning among students. An application that can enhance virtually every area of Physical Education and Sports both in research and in teaching is the motion analysis system. The advent of digital video cameras has simplified the collection of data. These results can then be imported to interactive multimedia presentation to provide students with a better understanding of the importance of breaking skills into components and the consequences of subtle variations in technique (Ladda, Keating, Adams & Toscano, 2004). This technology can help teachers monitor student progress toward motor skill goals, provide opportunities to give feedback and create ideal situations for assessment of student learning (Fiorentino, & Castelli, 2005).

Fitness Soft-wares

One of the valuable tools that is used to enhance the teaching and learning of physical education and sport programmes is the fitness software (Mohrisen, 2001). Various fitness software programmes are now available for Physical Education and Sport instructors to input and track progress over time. The ability to see result over time can be a powerful motivator for students. If they can see how and what they are doing is affecting them, it makes the learning meaningful. Similarly, there is software that will help Physical Education and Sport instructors and students to create portfolios. The long term tracking of students fitness components is not only valuable in assessing students performance, but it is also allows Physical Education and Sports instructors to evaluate the overall effectiveness of their programmes and make changes accordingly. Programmes that one constantly reflecting and adapting to meet students needs develop into strong programmes, giving it more values than those that do not.

Web-Quests

Despite some application requirements, web-quests provide another means of integrating computer technology into physical education and sport classes in order to enhance student-learning. Web-quests can be short-term and long-term. Either type of web-quest can be implemented in physical education and sports programmes without interfering too much with physical activity time. By their nature, short-term web-quests would not replace too much activity time, and they could be assigned as homework to

be completed outside the class. When thinking about web quest to be completed outside class, considerations must be made regarding students access to technology outside the school. Teaming with other teachers and using long-term web quest as a means of cross-disciplinary integration is a way to avoid conflicts with students' activity time. Web-quests are not only useful for students' outcomes, but provide opportunity for collaboration among teachers. Collaboration may change the image of the Physical Education and Sport instructors in the eye of their colleagues. They may better understand the role of Physical education and Sports as it relates to student learning and achievement in other subjects. The "buy in" factor with other teachers again becomes important when promoting your programme. Both types of web-quests can also serve as alternative learning activities for students who are temporarily unable to participate in physical activity due to medical or other reasons (Woods, Shimon, Karp & Jensen, 2004). According to Bennet & Green (2001) and Gockarp & Woods (2003), researches in online learning show that students can learn as effectively as in face-to-face instruction.

In general, each of the technologies discussed provide ways to aid in the assessment of students' skills and knowledge. In a broad sense, technology can be used to help make assessment more manageable. Quick and easy assessment, with the ability to record and store data over time is beneficial to teachers and students. These technologies allow teachers to create alternative assessment or ask students to apply knowledge or create something in a real-world context using newly gained information. This engages students in meaningful learning, which involves higher – order thinking, rather than rote learning, which involves the memorization and regurgitation of information. This allows Physical Education and Sport instructors, to gain a broader and perhaps more accurate picture of student learning. Alternative assessment can help students of all ability levels to feel excited about Physical Education and Sports (Sinclair, 2002).

Factors Militating against Effective Application of Information Technology to Physical Education and Sports at Tertiary Institutions in Nigeria

It has been observed that there are some hitches against effective application of information technology to physical education and sports programmes. These problems have contributed to the under-utilization of Information Technology in tertiary institutions in Nigeria. Some of the problems include:

- a. **Computer Illiteracy:** Quite a number of Physical Education and Sports instructors in tertiary institutions are computer illiterate just as the students are. Physical Education and Sports instructors have been found not to have sufficient knowledge on the modus operandi of some of these devices. Hence, this impediment hampers the adequate utilization of the gadgets.

- b. **Lack of Awareness and Culture about usage and Benefit of Information Technology:** Physical Education and Sport instructors and students in tertiary institutions are not aware of the benefits of the usage of Information Technology have for teaching and learning methods.
- c. **Poor Funding:** Most of our tertiary institutions are grossly incapacitated in the provision of information technology accessories because of their high cost of procurement. Not to talk of Physical Education and Sports instructors and students having personal information technology sets. This has greatly affected the effective applications of information technology to achieve educational objectives.
- d. **Poor Quality of Telecommunication Connectors:** Another challenge that militates against the effective utilization of information technology to Physical Education and Sports is, the low level of telecommunication connections in Nigeria. The few tertiary institutions where good facilities are available, the services are ineffective.

Conclusion

Information technology is a valuable asset to any physical education and sport programmes. It is a powerful instructional tool, an assessment tool and an advocacy tool. It engages students, making the learning a fun and meaningful. A combination of these characteristics enhances student learning.

Recommendations

The following suggestions are recommended for effective and efficient use of Information Technology in the teaching and learning of Physical Education and Sport in tertiary institutions in Nigeria.

1. There is the need for manpower development by way of encouraging Physical Education and Sport instructors to embark on in-service training so as to acquire the knowledge of Information Technology.
2. The government and non-governmental organizations (NGOs) can assist tertiary institutions by providing the needed fund for the procurement and maintenance of computer resources. These Information Technology resources include: standby generators, UPS, diskettes, PC monitors, well secured and adequately furnished computer laboratory.
3. The government through the media should create awareness of the benefits of Information Technology to Physical Education and Sport instructors and

- students as technological advancement could easily be attained through computer literacy.
4. Physical Education and Sport instructors should learn the correct use of application of programme to increase productivity. This will enrich the existing curriculum and improve the way in which it is delivered in tertiary institutions.
 5. Cost of Information Technology accessories should be subsidized by the relevant agencies to physical education and sports instructors to make them affordable. In another way, soft loans can be granted to those who are interested to help them purchase the accessories.

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