

A systematic review on examination of e-learning platforms in sports education

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ABSTRACT

The purpose of this research is to evaluate e-learning platforms in sports education. For a very long time, sports have been practical. By practical, this means that all the participants of the sports are physically present. However, times are drastically changing, and the world is looking at learning sports through computer technology. The paper examines the countries where e-learning is used to learn and teach sports. The research's focus is to investigate how the learning takes place, where it takes place, and, most importantly, the impact it has on the people using e-learning. Besides, the research tries to investigate the circumstances that allow for e-learning of sports and sports education to take place. Finally, e-learning in sports education has its challenges. Therefore, the paper will also look at the challenges faced by the people who take part in e-learning in sports and sports education. The article begins with an introduction, which is an in-depth look into the background of e-learning in sports. Furthermore, the unexplored areas of this phenomenon will also be addressed. The paper ends with a recommendation section on the topic and a conclusion on the research. Essentially, this paper is a critical analysis of how e-learning are affecting the world of sports. As a result, 30 papers were included, totaling 150 participants. It has been determined that coaching training is more prone than other fields (sports teacher, sports management, recreation leadership) in online sports training.

Keywords: Education technology, e-learning, sports education, apps.

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INTRODUCTION

The twenty-first century is the era of technology. This period, which is also accepted as the age of communication, has made people accept that technology and education are two inseparable phenomena. These two concepts feed from each other. This century has provided us with important opportunities in terms of accessibility of education. One of these areas, which is becoming increasingly widespread, is the field of sports education. The demand for sports education has been increasing in recent years, and this increasing demand creates many opportunities (Wang and Lv, 2019; Hall et al., 2019; Ozkara, 2018; Alemdag et al., 2016). Sport is no longer just a phenomenon performed by its professionals. Appealing to individuals of all ages, professions and social groups, it has become a profession for some, a passion for some, a hobby for

some, and an indispensable part of life for some (Özbay and Ulupınar, 2018; Kirkbir, 2017). According to the oxford dictionary, sports are a group of athletic activities, governed by some rules that inhibit a sense of competition for entertainment, physical wellness, or awards. Whereas, sports education, according to Siedentop (1994) is an instructional model, which links the sport, taught in physical education to the wider sporting culture. Hence, sports education is the curriculum for sports (Baca, 2014). E-learning is short for electronic learning. By definition, electronic learning is the study of a course or subject while utilizing electronic media and various types of communication technologies. Examples of electronic media include televisions, mobile phones, tablets, radios, the internet, and many more. The different types of e-learning, including interactive online

learning, computer-managed learning, adaptive e-learning, fixed e-learning, computer-assisted instruction, and many more.

The word e-learning dates back to the year 1999. However, the fundamentals of e-learning can be traced back to the 19th century (Nicholson, 2007). However, in 1960 is when the computer-based training program was first introduced to the world (Davis et al., 2000). Since then, electronic education has advanced from computer-based training (CBT) to web-based training (WBT) and so many more (Nicholson, 2007). The use of computers in sports dates back to the 1960s when computers were mainly used to accumulate and store information on sports. During this period, databases were established for pure documentation of publications like newspapers and articles that had any information on sports (Nicholson, 2007). During the 1970s, the International Association for Sports Information was created to advance this sector of computers in sports. These were also the years when computer experts were improving on computer models. Hence, this was the era of the real history of sports informatics (Barakhsanov et al., 2018). With more development of faster microprocessors, new scientific paradigms were introduced. These include sports data mining, simulation, and many others. By 2004, sports science was a recognisable word in the English dictionary (Barakhsanov et al., 2018)

Considering the researchers' interest, sports can be considered as a new field. Some of the major sports of the world include Olympics, football, indoor games, and even boxing. Another part of the sport that is a major part of this study is sport education. When studies on creating curriculum in sports education are started compared to other courses, interest in sports education has started to increase. Courses in this area include fitness training, coaching courses and leadership coaching courses. As a matter of general knowledge, the world has a lot of sports, and for anyone who wants to learn any sport in the world, the first place they would consider looking it up is the internet (Urbánková et al., 2013). That is where e-learning comes into play.

E-learning has its advantages. To begin with, it makes information easily accessible to everyone in the world, provided there is an electronic device. Secondly, as compared to other methods, it is cheaper because many sportspeople travel all around the world to seek expert coaching (Stănescu and Muşat, 2015). From an academic perspective, most of the resources are now available online. Especially universities are connected to each other with highly developed virtual libraries. While education through sports is used as a communication tool, sports itself has now begun to be taught through communication tools (Özkara, 2018; Yanga and Yenb, 2016). With e-learning, athletes get expert teaching at the moment. Another advantage attached to e-learning is the ability to learn someone's own pace (Stănescu and Muşat, 2015). Traditional sports education involves

learning with a team, and most of the time, the coaches go with the speed of the fast learners. With e-learning, the situation is very different. The main disadvantage of e-learning in sports education is accessibility to the internet and electronic devices (Leser et al., 2011). Inasmuch as the world has advanced, there are still very many places in the world with no access to the internet or a small computer like a mobile phone. Furthermore, e-learning does not give much room for learners' feedback (Leser et al., 2011). Most of the time, teaching is one-sided.

The main aim of this systematic review is to look into scholarly studies that have researched the topic of e-learning in sports education around the world. The expected result is to understand the use and adoption of e-learning in the world of sports. These scholarly articles are mainly research papers and articles that address this issue while referring to some countries in the world. This study serves to answer the following questions:

1. What research types, methods and theoretical frameworks have been used in the scholarly studies?
2. What are the devices and platforms mainly used for e-learning in sports education?
3. What challenges face e-learning in sports education?

MATERIALS AND METHODS

The requirement for this research is a systematic review of the question. A systematic review is the orderly review of literature relevant to a formulated question. It involves collecting secondary data, carefully appraising research studies, and analysing findings. This method needs a lot of evidence; thus, the research ought to be comprehensive, reliable, transparent, and orderly (Uman, 2011). Therefore, after identifying research articles, an inclusion criterion was developed. A critical study followed. Finally, the results were put into a considerable discussion that aims to answer the question of the study.

Search strategy

The literature for the study was mainly sought online. The articles and research papers were looked into after logging into various databases and online libraries. The internet search was an assurance of a broader scope of the research. Internet searches cover more countries than the local libraries might offer. For a faster search of the research papers, keywords including sports education, e-learning, electronic media were used.

Study selection

Initially, one hundred and fifty articles were found to be

very relevant to the question. Eventually, thirty articles were found to be relevant. Therefore, these thirty articles were the main sources of content in the research. These articles' publications date varied from the early 2000s to 2019. The period focuses on the growth of e-learning from the very first-time e-learning was developed to the most recent cases.

Inclusion criteria

Relevant data were extracted from the thirty articles. In addition to the articles, several videos on the impact of e-learning were taken into consideration for the research. Some of these videos included personal interviews of several athletes who have experienced e-learning and how it had worked out for them (Iskandar et al., 2011).

Data extraction and analysis

In conclusion, all the articles chosen passed the criteria, and the next stage was applied. The next step involved analysing the data and drawing conclusions from them. The research in this final stage begot the results that were deemed as very relevant answers to the research question.

RESULTS

Using the systematic review, the following results were concluded. The results acted as answers to the questions given above will be answered. The studies reviewed are listed in the Appendix.

The thirty research studies employed three main types of research types. The most popular one was a mixed research approach, which involved combining qualitative and quantitative research. Twenty studies utilized mixed research, while seven used quantitative research. The last three were case studies (Figure 1). As for the research method, four main methods were applied. These were questionnaires, interviews, literature review, and observation. All of the studies gathered data using questionnaires and literature reviews. Ten of the studies applied observation and individual interviews. Not all the studies had theoretical frameworks backing them. Only ten of these studies used theories, which were based on the theory and background of computer science. These frameworks include the Social Learning Constructivist theory, Roger's Diffusion of Innovations Theory, Reeves, and Oliver's nine characteristics of authentic learning and Technology Acceptance Theory.

For conclusive research, the studies sought to identify the most used electronic devices in e-learning in sports education. Twenty-five of the research studies identified smartphones while the other five identified laptops and tablets (Figure 2). Moreover, the studies also investigated

the availability of these devices in various countries.

According to most of the reviewed studies, the main challenge associated with e-learning in sports is poor technological infrastructure (Urbánková, 2013). This is mainly observed in countries in Africa and South America. Poor technology infrastructure leads to little to no internet access. Hence, coaches and teachers of different sports do not get to teach their students like in Germany or the United States (Barajas and Gannaway, 2007). In Kenya, for example, the government delivered tablets to their students. In as much as this was for a class, sports teachers also used the same. The problem was Kenya does not have electricity in all parts of the country (Hollings and Ritzdorf, 2003). Therefore, in as much as the tablets are available, power and the internet is a problem. In Brazil, the studies suggested that since football is part of their culture, teaching it practically is the way Brazilians believe. Therefore, the challenge of implanting e-learning in sports is that nobody believes in it. Consequently, they do not even try it out (Danylchuk et al., 2008).

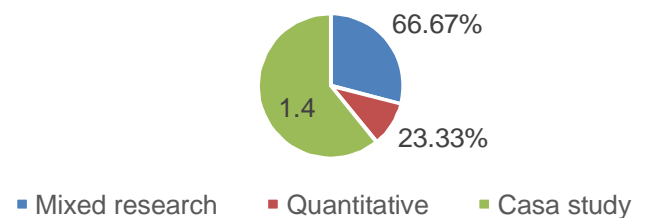


Figure 1. Research methods in e-learning platforms.

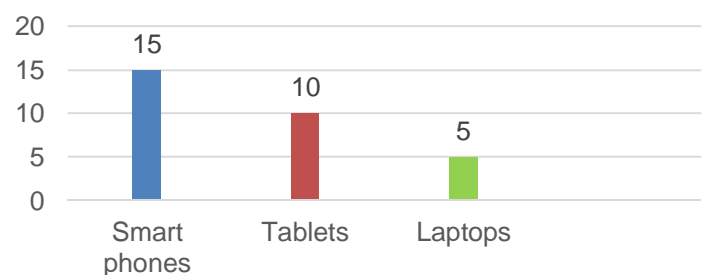


Figure 2. Devices used in e-learning platforms.

DISCUSSION

According to Baca (2014), computer science and technology has planted its roots permanently into the sports world. In his opinion, e-learning is the best thing that ever happened to sports. He suggests that from the most remote areas, anyone can acquire knowledge and develop a passion for any sport.

Therefore, the conclusive result of this question is that

e-learning is making strides in the sports sector. However, the implementation of e-learning is just at its starting point. In general, much like any other field, the research concludes that e-learning in sports should grow, and constant development should be implemented (Lominé, 2002).

Inasmuch as e-learning is majorly about teaching athletes, the field covers many other sectors. These sectors include sports management, and in sport management, many roles have to be explored to fully understand the application of e-learning (Stănescu and Muşat, 2015). Tasks such as educating sportspeople on relevant sports information like anti doping and the likes is an essential avenue that e-learning can address.

E-learning could also create a world social communications media that could unite all the athletes and sportspeople of the world. This media could be like WhatsApp for sports. With such a platform, different people could interact with one another and educate one another (Ortiz and Cánovas, 2017). The world of sports could become smaller, and a child in Asia could get a chance to meet and interact with his favourite football player.

As already discussed, technological infrastructure is a problem for most developing countries. Therefore, as a recommendation, countries should strive to have well-developed technology in their schools and sports clubs. In conclusion, the examination of e-learning in sports is a broad area of study. This research paper has looked into the areas the e-learning takes place, the advantages of e-learning together with its disadvantages. Through extensive reading of scholarly material, the findings have signified that e-learning is a productive sector in sports education.

CONCLUSION AND FUTURE WORK

The concept of e-learning will continue to be a trend that is increasingly trending today. The covid -19 outbreak, which has recently become a common problem in the world, has increased interest in e learning platforms in the field of education. Besides the benefits of e-learning environments becoming widespread, it also includes various negative possibilities. Since we are in a very new process, it can be considered to be based on in-depth research on the reliability of e learning platforms. Until recently, studies on e-learning platforms have generally been on accessibility and functionality. However, we should not face the fact that e-learning platforms are a functional data acquisition tool. Particular emphasis can be placed on the industrial rights of scientific research ideas carried out in schools, the privacy of students and educators. When we look at e-learning platforms in the field of sports sciences, it is seen that technological developments are focused more on individual participants. However, considering the impact of the epidemic period, it can be suggested to focus on the

technological researches that appeal to all segments of the society. It can focus on the work that can be used for providing public access to team sports.

REFERENCES

- Aldrich, C. (2005).** Learning by doing: A comprehensive guide to simulations, computer games, and pedagogy in e-learning and other educational experiences. John Wiley & Sons.
- Alemdag, C., Alemdag, S., and Ozkara, A. B. (2016).** Physical activity as a determinant of subjective happiness. *Baltic Journal of Sport and Health Sciences*, 4(103): 2-10.
- Allen, M. W. (2011).** Designing successful e-learning: Forget what you know about instructional design and do something interesting (Vol. 2). John Wiley & Sons.
- Aras, E., and Karakaya, Y. E. (2020).** E-learning in sports education institutions in Turkey. *Malaysian Online Journal of Educational Sciences*, 8(1): 14-26.
- Baca, A. (Ed.). (2014).** Computer science in sport: research and practice. Routledge.
- Barajas, M., and Gannaway, G. J. (2007).** Implementing E-learning in traditional higher education institutions. *Higher Education in Europe*, 32(2-3): 111-119.
- Barakhsanov, V. P., Barakhsanova, E. A., Olesov, N. P., and Prokopyev, M. S. (2018).** E-learning system application for physical education and sports specialist training. *Theory and Practice of Physical Culture*, 7: 4.
- Beard, C., Wilson, J. P., and McCarter, R. (2007).** Towards a theory of e-learning: Experiential e-learning. *Journal of Hospitality, Leisure, Sport and Tourism Education*, 6(2): 3-15.
- Cross, J. A., Cross, J., and Dublin, L. (2002).** Implementing E-learning. American Society for Training and Development.
- Cushion, C. J., and Townsend, R. C. (2019).** Technology-enhanced learning in coaching: A review of the literature. *Educational Review*, 71(5): 631-649.
- Danylichuk, K. E., Doherty, A., Nicholson, M., and Stewart, B. (2008).** International sport management: creating an international learning and teaching community. *International Journal of Sport Management and Marketing*, 4(2-3): 125-145.
- Davis, B., Bull, R., Roscoe, J., Roscoe, D., and Saiz, M. (2000).** Physical education and the study of sport.
- Glang, A., Koester, M. C., Beaver, S., Clay, J., and McLaughlin, K. (2010).** Online training in sports concussion for youth sports coaches. *International Journal of Sports Science and Coaching*, 5(1): 1-11.
- Hall, E. T., Cowan, D. T., and Vickery, W. (2019).** 'You don't need a degree to get a coaching job': investigating the employability of sports coaching degree students. *Sport, Education and Society*, 24(8): 883-903.
- Hollings, S., and Ritzdorf, W. (2003).** How e-Learning could enhance coach education programs. *New Studies in Athletics*, 18(1): 53-58.
- Horton, W. K. (2001).** Leading e-learning. American Society for Training and Development.
- Huang, C. H., Chiu, C. F., Chin, S. L., Hsin, L. H., and Yu, Y. P. (2010).** A sports e-learning platform: Teaching and learning by using multimedia content. In 2010 3rd IEEE International Conference on Ubi-Media Computing (pp. 222-226). IEEE.
- Iskandar, Y. H. P., Gilbert, L., and Wills, G. B. (2011).** Pedagogy in computer-based sports training. In 2011 IEEE 11th International Conference on Advanced Learning Technologies (pp. 403-408). IEEE.
- Khan, N. (2012).** Information technology-Integral part of sports. *Education*, 3(6).
- Kirkbir, F. (2017).** Investigating the effect of mental imagery on the success of athlete students at Trabzon University, Turkey. *European Journal of Physical Education and Sport Science*, 3(11).
- Leser, R., Baca, A., and Uhlig, J. (2011).** Effectiveness of multimedia-supported education in practical sports courses. *Journal of Sports Science and Medicine*, 10(1): 184.
- Li, K. F., Takano, K., and Johnson, M. G. (2011, October).** Motion tracking and processing for multimedia sport e-learning. In 2011

- International Conference on Broadband and Wireless Computing, Communication and Applications (pp. 75-82). IEEE.
- Lominé, L. L. (2002).** Online learning and teaching in hospitality, leisure, sport, and tourism: Myths, opportunities, and challenges. *Journal of Hospitality, Leisure, Sport and Tourism Education*, 1(1): 43-49.
- Nicholson, P. (2007).** A history of e-learning. In *Computers and education* (pp. 1-11). Springer, Dordrecht.
- Ortiz, C. D., and Cánovas, I. Á. (2017).** Inspiring Change in e-Training Sports Coaching: Lessons Learned From a Descriptive Study. In *European Conference on e-Learning* (pp. 156-162). Academic Conferences International Limited.
- Özbay, S., and Ulupinar, S. (2018).** The effects of regular exercise on the body composition are different in trained athletes with and without fasting, 20(4): 60-68.
- Özkara, A. B. (2018).** Physical education in EU schools and Turkey: A comparative study. *Comparative Professional Pedagogy*, 8(2): 101-106.
- Stănescu, M., and Muşat, N. (2015).** Quality analysis model of the e-learning training system for sports occupations. *Procedia-Social and Behavioral Sciences*, 180: 1351-1356.
- Stanescu, M., Stoicescu, M., Bejan, R., and Vasiliu, A. M. (2011).** Premises to implement e-learning for in-service physical education and sports teachers. In *Proceedings of the 7th International Scientific Conference, eLearning and Software for Education, Carol I National Defence University, Editura Universitară (Vol. 1)*.
- Stauff, M. (2009).** Sports on YouTube. *The YouTube Reader*, 236-251.
- Stoyanov, H. (2014).** Competition Model Characteristics of Elite Male Sprinters. *Thoughts from the Gala*, 51.
- Takahashi, H., Tanaka, Y., Murakami, S., Kitagawa, J., Murata, K., Sakanaka, M., and Wada, T. (2014).** Coaching Skills Training for Physical Education University Students with E-Learning. In *INTED2014 Proceedings* (pp. 611-617). IATED.
- Uma, G. V. (2010).** Semantic web-based e-learning system for sports domain. *International Journal of Computer Applications*, 8(14): 21-25.
- Uman, L. S. (2011)** Systematic reviews and meta-analyses. *J Can Acad Child Adolesc Psychiatry*, 20(1): 57-59.
- Urbánková, E., Augustýn, T., and Júva, V. (2013).** The use of information technology in non-formal education and learning of handball coaches. *Journal of Human Sport and Exercise* 9(1 (special issue)).
- Vohle, F., and Reinmann, G. (2014).** Social video learning and social change in German sports trainer education. *International Journal of Excellence in Education*, 6: 1-11.
- Wang, J., and Lv, B. (2019).** Big data analysis and research on consumption demand of sports fitness leisure activities. *Cluster Computing*, 22(2): 3573-3582.
- Yanga, J. Y., and Yenb, Y. C. (2016).** College students' perspectives of e-learning system use in high education. *Asian Journal of Education and Training*, 2(2): 53-62.
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Appendix

Table 1. Characteristics of study population and studies.

REFERENCES	COUNTRY	N	DESIGN	FOCUS	SUMMARY OF FINDINGS
Aldrich (2005)	United States	50	Mixed	Pedagogy in e-learning in sports education	The results show the positive effects of e-learning teaching in sports education.
Allen (2011)	United States	11	Mixed	Designing successful e-learning platforms for sports education	With proper content in e-learning platforms, results show a positive impact.
Baca (2014)	United States	x	Qualitative	Computer science in sport	computer-based coaching training is on a rising trend
Barajas and Gannaway (2007)	Europe	119	Mixed	Implementation of e-learning in sports education in higher education	Results show that over the years, e-learning has affected Europe positively.
Beard (2007)	China	44	Case study	Theory and experimenting on e-learning in sport, tourism education	In higher education institutions, several experiments of e-learning in sports education have yielded positive results.
Barakhsanov et al. (2018)	Germany	15	Case study	E-learning system application for physical education	Students are reacting positively to physical education through e-learning.
Cross et al. (2002)	United States	20	Mixed	Implementation of E-learning for training and development	Schools should be well equipped with the correct computer technology.
Cushion and Townsend (2019)	England	649	Mixed	E-learning in the coaching of sports	The results of this study suggested that most coaches prefer non-computer based training.
Danylchuk et al. (2008)	Worldwide Study	145	Mixed	International sports coaching and management using computer technology	Only developed countries have fully implemented coaching using computers.
Davis et al. (2000)	United States	20	Qualitative	study of sport with computer technology	With the help of smartphones, e-learning in sports education has a positive impact on students.
Aras and Karakaya (2020)	Turkey	26	Qualitative	E-learning in sports education institutions	This study suggests that most e-learning in sports education takes place in higher education institutions.
Glang et al. (2010)	Worldwide	11	Qualitative	Online training in sports for youth coaches	Youth are open to the idea of e-learning of sports education
Hollings and Ritzdorf (2003)	Kenya	58	Mixed	Enhancing e-learning in sports education for coaching education	Governments are seriously investing in e-learning infrastructure

Table 1. Continues.

Horton (2001)	United States	10	Qualitative	E-learning for training and development	E-learning in sports education is well accepted.
Huang et al. (2010)	China	226	Case study	Sports e-learning platforms	YouTube and many other computer applications as china's most used platforms.
Iskandar et al. (2011)	Worldwide	408	Mixed	Computer-based sports training	The findings of this study discovered that computers have well-impacted sports education.
Khan (2012)	United States	184	Mixed	Information technology as an integral part of sports	This study brings out how vital information technology is in e-learning in sports education
Leser et al. (2011)	Germany		Mixed	Effectiveness of multimedia supported education in sports	The research concludes with how Germany has progressed in sports education through computer technology.
Li et al. (2011)	Asia-Not Specified	82	Qualitative	Impact of multimedia in sports e-learning	This study shows that computers have changed the outlook of sports education
Lominé (2002)	United State	49	Qualitative	Online learning in sports, tourism, and hospitality	It has also positively affected tourism and hospitality all through sports education.
Nicholson (2007)	Worldwide	11	Case study	A history of e-learning in sports	This study mainly focused on the history of e-learning in sports
Ortiz and Cánovas (2017)	Europe-Not Specified	162	Mixed	Changes in e-training coaching	The results of this study how coaching in sports is changing through e-learning.
Stănescu and Muşat (2015)	Not Specified	135	Qualitative	E-learning training systems for sports	This study highlights the challenges e-learning in sports has faced
Stanescu et al. (2011)	Not Specified	56	Case study	Implementing e-learning for physical education and sports teachers	This study focused on the conflict between people's culture and e-learning in sports education
Stauff (2009)	Kenya	1	Mixed	Youtube-e-learning platform for sports education	This study specifically focused on Julius Yego, a Kenyan athlete who used YouTube to learn how to javelin throw
Stoyanov (2014)	Japan	51	Mixed	Implementing competitions model characteristics through e-learning	This study focused on the problems faced by coaches in implementing skills on athletes using computer technology.
Takahashi et al. (2014)	Europe-Not Specified	617	Case study	Coaching skills training for physical education for university students with e-learning	This study focused on the bettered skills of different university athletes that used e-learning platforms

Table 1. Continues.

Uma (2010)	Worldwide	75	Qualitative	Web-based e-learning systems for sports education	This study highlighted challenges facing e-learning systems for sports education.
Urbánková et al. (2013)	Asia-Not Specified	138	Mixed	Use of information technology in the learning of handball coaches	Throughout the continent, the results showed that information technology has positively affected sports education.
Vohle and Reinmann (2014)	Germany	11	Case study	Social video learning and social learning in sports trainer education	Students respond well to social videos and social learning in sports using computers.