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Review article

In favor of a Virtual Physical Education in times of COVID

Por una Educación Física virtual en tiempos de COVID

Para uma Educação Física virtual em tempos de COVID

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ABSTRACT

The Sars-Cov-2 virus has inevitably caused the Covid-19 disease. It has been one of the worst news that has happened to humanity at the beginning of the 21st century. The material damage and loss of human life has been significant, as well as the collateral effects from the social and psychological point of view. In response to contain or counteract these high affectations, various areas of knowledge and human activity are activated, multiplying and creating new mitigation strategies. One of the areas that has contributed the most during the quarantine periods and after it, is the area of Physical Culture, sports and specifically the didactics of Physical Education. The aim of this work is to systematize a group of scientific publications referred to physical activity, sport and Physical Education in times of COVID, focused on the virtual environment and the use of ICTs. With this study, it is intended to carry out an analysis of the main positions of the authors in order to obtain a criterion about the potentialities of virtual Physical Education to face the COVID-19 attacks. Together with this periodization, a group of methodological recommendations will be added, aimed at perfecting the work of Physical Education teachers with the use of ICTs in these exceptional moments that humanity is going through.

<http://podium.upr.edu.cu/index.php/podium/article/view/1002>



Keywords: Physical Education; Virtual environment; COVID-19.

RESUMEN

El virus Sars-Cov-2 ha provocado inevitablemente la enfermedad Covid-19. Ha sido una de las peores noticias que le ha acontecido a la humanidad en estos duros inicios del siglo XXI. Los daños materiales y pérdidas de vidas humanas han sido significativos, así como los efectos colaterales desde el punto de vista social y psicológico. En respuesta a contener o contrarrestar estas elevadas afectaciones, diversas áreas del saber y de la actividad humana se activan, se multiplican y crean nuevas estrategias de mitigación. Una de las áreas que más ha aportado durante los períodos de cuarentena y posteriores a este, es el área de la Cultura Física, el deporte y específicamente la didáctica de la Educación Física. El objetivo de este trabajo es realizar una sistematización sobre un grupo de publicaciones científicas referidas a la actividad física, el deporte y la Educación Física en tiempos de COVID, enfocadas en el entorno virtual y el empleo de las TICs. Con este estudio, se pretende realizar un análisis sobre las principales posiciones de los autores en función de obtener un criterio sobre las potencialidades de la Educación Física virtual para enfrentar los embates de la COVID-19. Unido a esta periodización se añadirá un grupo de recomendaciones metodológicas dirigidas a perfeccionar el trabajo del docente de Educación Física con el empleo de las Tics en estos momentos excepcionales que atraviesa la humanidad.

Palabras clave: Educación Física; Entorno virtual; COVID-19.

RESUMO

O vírus Sars-Cov-2 levou inevitavelmente à doença de Covid-19. Tem sido uma das piores notícias que tem acontecido à humanidade nestes duros começos do século XXI. Os danos materiais e a perda de vidas humanas têm sido significativos, bem como os efeitos colaterais do ponto de vista social e psicológico. Em resposta a conter ou contrariar estes elevados impactos, várias áreas do conhecimento e da atividade humana são ativadas, multiplicando-se e criando novas estratégias de mitigação. Uma das áreas que mais contribuiu durante os períodos de quarentena e pós quarentena foi a área da Cultura Física, desporto e especificamente o ensino da Educação Física. O objetivo deste trabalho é sistematizar um grupo de publicações científicas relacionadas com a atividade física, desporto e Educação Física no tempo da COVID, centrando-se no ambiente virtual e na utilização das TIC. O objetivo deste estudo é analisar as principais posições dos autores a fim de obter um critério sobre o potencial da Educação Física virtual para enfrentar os ataques da COVID-19. Juntamente com esta periodização, será acrescentado um grupo de recomendações metodológicas, destinadas a aperfeiçoar o trabalho do professor de Educação Física com a utilização das TIC nestes momentos excepcionais que a humanidade está a atravessar.

Palavras-chave: Educação Física; Ambiente virtual; COVID-19.



INTRODUCCION

"COVID-19, a disease caused by the SARS- CoV-2 virus, has been classified as a Pandemic by the WHO (World Health Organization). Globally, policies of extensive social isolation and distancing have been adopted in an effort to curb infection levels, particularly in groups vulnerable to high risks of morbidity and mortality" (Pinto, *et al.*, 2020, p. 1).

Many public and private facilities of all types closed their doors with the advance of this pandemic and even in times of quarantine, humans felt the need to leave confinement and engage in physical activity. Moreover, even at home the exercise of an activity to keep the body in shape as it transitioned into the emerging need to practice it for mental and physical health. However, in most cases **World Health Organization (2020)** mentions that:

(...) many opportunities to be physically active have been suspended, including rehabilitation of patients with heart problems, physical education in schools and sports programs, fitness centers and public parks, sports infrastructure that was not being used by the majority of the global population before COVID have decreased considerably (p. 21).

Nevertheless, sport and physical activity continued to be practiced at any level, spaces were projected on television to replace the traditional gymnasium lessons and it became above all a medicine for the population's stress. It is not by chance that many studies point out that:

The promotion of healthy lifestyles during the pandemic associated with COVID-19 is aimed at improving the environment and society in which people live (healthy environments) and, on the other hand, optimizing people's abilities to lead a healthier life (Romero *et al.*, 2020, p. 32).

Exercise became indispensable medicine in the COVID, and if it became an attractive option for the youth, it became more necessary for those who are already in the third age:

According to information from the World Health Organization [WHO], the most vulnerable population is the elderly and people with chronic diseases such as diabetes, hypertension and obesity, called non-communicable diseases [NCDs], which affect 71 % of the world's population. In Peru, the growth of these diseases has almost doubled in less than 30 years: from 36 percent in 1990 to 66 percent in 2017. In other words, almost seven out of 10 people belong to the COVID-19 risk group (Diez Canseco Terry, 2020, p. 5).

Thinking about that weakness that drags multitudes of old people towards the serious and critical state is that the professional of the Physical Culture designs new plans and programs to protect the most vulnerable sectors, in this sense **Rodríguez, Crespo and Olmedillas (2020)** mention that:



The most representative institutions in terms of physical exercise and health have created spaces and recommendations to motivate people to continue being physically active during quarantine. The population should carry out multi-component programs that include aerobic exercise, strength, balance and stretching exercises. In addition, cognitive tasks are recommended in the elderly to preserve cognitive ability and brain activity (p. 15).

On the other hand, although technological development is not the same in all nations and territories, it has become urgent to take alternatives that will perfect the didactics of Physical Education from and to distant places, the pandemic has forced sports education to rethink its methods and objectives, whether in school or at the university. How to teach the contents of Physical Education? What materials to use (structured, alternative, reused, newly created) to teach classes in virtual classrooms? How to train sports techniques in high schools and universities? What methodologies should be used to evaluate the performance of students and athletes? Undoubtedly, the pandemic crisis has made body education comparable to the way it was conducted only a few months ago. This seems to be the furthest thing from its basic concepts, which in the end adopt the method of distance education. The e-learning variant and the virtual education (Isidori, 2020, p.7).

It is as important to establish a project of activities for virtual Physical Education in time of quarantine as to sustain the dynamics of these activities when that quarantine has been removed and returns to normal. In all this it is fundamental to prepare the population for the future that must and must be better, Tascón (2020) comments that:

"Many hours have been invested and shared by the entire sports family providing possible solutions, visions, experiences, etc., for when the time comes for the desired de-escalation. In retrospect, these past weeks seem eternal and yet it is getting closer and closer to returning to the new normality. *This return has to be with new habits, new rhythms.* We must leave behind our recent and old normal life (and I think forever). We must learn and relearn to live in a new stage. The sooner we assume this and look for solutions looking to the future, the more creativity, innovation and progress sport will have in all its versions. A great window of opportunity is opening" (p. 8).

Virtual Physical Education should aim not only to enhance physical abilities but also to strengthen thinking, the way to proceed and operate time post COVID-19 that seen from its characteristics has to depend on the ability that we are more capable of solving our problems with intelligence, limiting this thought Infante (2020) mentions that:

"The cognitive training is an activity framed within the cognitive stimulation, which seeks to promote the capacities or cognitive abilities, such as: memory, processing speed, executive control, orientation, attention, problem solving and flexibility. Athletes who have trained their cognition are more capable of making decisions (make fewer errors and process information more quickly), can understand how the human brain generates, codes and memorizes the



surrounding space with respect to its own location and have better coordination" (p. 17).

Whether traditional or virtual physical education, the fundamental post-pandemic goal must be directed to the physical, coordinating, motor, but most of all, to the capacity of the human being to create, fight and sustain well-being and happiness, Colef (2020) argues that:

"In short, Physical Education is fundamental for the integral development of the student body. Therefore, we must guarantee that it is taught in a safe and responsible way, for both teachers and students, thus ensuring that they acquire the basic competences and provide them with the skills and opportunities to promote health and well-being, so important during these uncertain and difficult times. This will also help them to have tools and build resilience in the future" (p. 26).

Ecuadorian Physical Education seeks the autonomy of physical activity so that it can be replicated at any time (Posso Pacheco, R. J. *et al.*, 2020). For this reason, the application of virtuality should take into account the inclusive, playful, and corporal approaches proposed in the national Physical Education curriculum (Posso Pacheco, Barba *et al.*, 2020), proposing exercises that are contextualized to the needs and requirements of the student and his or her environment.

Students should also be educated from the virtual world to practice exercises and protect the means by which they do so. If we are talking about managers and decision makers, it will be of vital importance to ensure that sports events are not interrupted without proper authorization, consensus or planning because the consequences could be more disastrous.

"If a sporting event is cancelled without a risk assessment, the consequences of these cancelled events can be very costly in human and financial terms" (Parnell, *et al.*, 2020, p. 5).

On the other hand, exercising in the current quarantine is more of a contingency solution that could help the body, but in many cases could affect it considerably. This is why there is a need to establish a homogeneous virtual Physical Education (PE), which would reach as many people in need as possible Rodríguez, M. Á., Crespo, I., & Olmedillas, H. (2020).

When analyzing several publications and researches about Physical Education in COVID-19 times, it becomes relevant to consider the following as an objective of this work: to carry out a systematization of a group of scientific publications referred to physical activity, sport and Physical Education in COVID-19 times, focused on the virtual environment and the use of ICTs.



DEVELOPMENT

Within the context of virtuality, its origin and application Singh, *et al.*, (2020) mentions that:

"Virtual reality is defined as a simulated experience, somewhat similar to the real time situation. In 1994 the first language based on virtual reality was projected; used to humanize the virtual world and thus solve apparently complex situations. This technology has been used for medicine, video games and military purposes among others" (p. 1).

Although initially this was the origin and motivation for the use of virtual reality, the demands of technological development and the complexities of science in various areas meant that virtual reality was also extrapolated to areas such as physical culture and sport. Seeing this, it would be very beneficial for all programs around the world to have the benefits of virtual reality to modernize their curricula, especially those related to Physical Education; however, the nature of virtual reality announces a reality with adversities as Álvarez, Cardona and Padilla (2004) maintain when they mention that:

(...) virtual reality, is nothing more than a representation of reality through three dimensions (length, width and depth) and the ability to design any possibility of environments, objects, people, etc. real or imaginary, the main limitation to this is the great capacity of resources required to develop and support software and applications (p. 4).

But, looking from another prism, somewhat distant from the economic factor, there are some suggestions or precisions that can be adopted so that even having or lacking these technological resources this virtual reality works well:

In the specialized literature some suggestions have been found that can be useful to develop virtual education practices with quality, they are:

- Base all practices on sound pedagogical theories.
- Recognize that the classical pedagogical principles that reinforced traditional classroom education are still in force and are applicable with some reformulations to the requirements of virtual education.
- To undertake research processes that reinforce the proposals for change.
- Consolidate the good practices that have been developed and guarantee well-articulated designs and future proposals.
- Submitting institutions, programs, courses and teachers to permanent quality evaluation processes" (García, 2002; La Madriz, 2016; Molina Prendes, *et al.*, 2020).

It can be added to this proposal that according to Yu and Yan (2016) and Gómez García, *et al.*, (2019) it is demonstrated that virtual reality in the field of Physical Education, regardless of how it is applied either with more or less advanced devices, involves higher quality content, more advanced teaching methods, an improvement in the creativity and cognitive aspect of the students, a greater commitment by teachers in the teaching-learning of this subject and a greater combination of the theoretical aspect of Physical Education with the practical.



In search of experiences made around virtual reality applied to Physical Education, the research carried out and disseminated by **Bores-García, González-Calvo y García-Monge (2018)** stands out. The methods used were the interview and the discussion group as the two essential instruments. The sample used was: three active Physical Education teachers and four university teachers. Twelve students in initial training of Teacher Training studies, participants of (Re) Produce, (A virtual reality platform applied to Physical Education), were also interviewed, as well as community members with a very poor participation in the platform.

Most of the threads created in this resource are related to didactic units that have been replicated by some teachers in their schools, such as We regulate our effort: the healthy race, the good game, investigating the influence of rules on action, it is better organized along with others with strategies in invasion games, we create human figures in a shared way safe, difficult and aesthetic: *Acrosport or Progress in my skills and help others doing parkour*.

Most of them are linked to a common idea about Physical Education. In general this option has facilitated interactivity in the group of students. Hypothetically it would be a potential to take into account in the present times of pandemic and social distancing. However, weaknesses have been identified such as fear of being judged, given that written opinions endure over time; indications of distrust due, perhaps, to not knowing all the members of the network personally; and inhibitions at the time of participation caused by the perception or persistence of a certain hierarchical structure (for example, among students, alumni and their former teachers or among people of different status).

Piedra (2020) also mentions that:

"Thus, the practice of physical activity has also had to adapt to new circumstances, and in this adaptation social networks are playing a key role. We can think that the impossibility of leaving the house would decrease the levels of physical activity. However, thanks to social networks such as Instagram or Youtube, motivated people follow training programs during confinement. Exercisers have often sought out these social networks for the support they once had from clubs or gyms. Thanks to networks like TikTok, physical education teachers are challenging their students in their classes and students are able to create responses to these challenges" (p. 42).

This COVID-19 pandemic has come to change everything and unfortunately it has come to accentuate social problems that were already contrasting many centuries ago. Among these problems, the COVID-19 exposes many internal elements covered by class inequality such as: access to material resources for health and education. In countries such as Brazil and Ecuador these differences or gaps become more noticeable. On this occasion, we will summarize some of the points made in research on this subject, specifically in Ecuador:

- The suspension of school attendance in Ecuador directly affects more than 4.5 million children and adolescents enrolled in the National Education System.
- The bulk of the student population belongs to public institutions, with a minority of the population belonging to private or fiscal institutions.



- In relation to technological equipment in Ecuadorian homes, only 24.5 % have a desktop computer, 24.2 % a laptop computer, and only 11.2 % have a desktop and laptop computer.
- Only 37.2 % of Ecuadorian households have an internet connection, which means that six out of every ten children cannot continue their studies through tele-education.
- In rural areas, only 16.1 % of households have connectivity.
- The capacity of educational institutions and teachers to respond to tele-education has also been unequal, a difference marked above all by the type of financing.
- Most private educational institutions have incorporated digital platforms and environments as a complement to the face-to-face education model since before confinement.
- In contrast, in public educational institutions, some of the teachers have had to be trained in a rushed manner in the use of ICTs, as well as making use of their own personal resources (Roger García, 2020; INEC, 2018; Observatorio Social del Ecuador, 2020; Vivanco Saraguro, 2020).

If this is the way tele-education behaves in the educational system of Ecuador, a country heavily hit by the effects of the most terrifying pandemic of recent times, how could a successful project for Virtual Physical Education be achieved? The least intelligent person in the world would have to declare that if strategies, reforms and programs are not created to bring the majority of the population closer to the use of technologies, it would not be possible to sustain this process.

A less intelligent being would think that, because someone moderately wise would think that first the technologies would have to think how to extend the education for the use of the technologies. The conclusion is that there are more people with mobile devices than people who use this device for personal development, self-improvement, business improvement and professional academic exchange.

CONCLUSIONS

The COVID-19 pandemic has come to exterminate lives, dismantle projects, damage economies and above all has come to challenge human intelligence. As a method of compensation and development, even in times of quarantine, physical culture and sports are launched. Projects are undertaken to intensify and extend physical exercises to all possible territories through Information Technologies (ICTs). Tele-education and virtual Physical Education become an effective tool to contribute to the quality of life of people in conditions of isolation and social distance. The didactics of Physical Education (PE) is turned to the discovery of new methods and strategies to reach more people in the best way.

It is just as important to ensure that physical activity in the virtual is effective in times of COVID as in the expected de-escalation. To guarantee the success of EF in times of COVID it is as indispensable to develop physical capacities as to develop thought in order to ensure human welfare. Not all countries are technologically prepared to establish a sustainable and balanced FE and to achieve this it will be necessary to involve local and national governments.



Virtuality is a technological advance that, when put in the hands of the population, implies countless savings in resources and a valuable interaction between students. However, there are many actions that must be undertaken not only to make these resources available to students but also to prepare them to make good use of them. There is no doubt that virtual physical education was created to provide the world with physical activity and sport for all, in our hands is to make possible its mission during the COVID-19 and happily after it.

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The authors have participated in the writing of the work and analysis of the documents.



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